Test oil: ISO 4113 od SAE J967d

ZEXEL - Test values

Distributor pumps Engine: NEW HA

BOSCH no. 9 460 610 295 DKKC no. 104740-0097 Date: 15.4.1988 (0) Company: MAZDA

Company: MAZDA
No: SE01 13 800E

Injection pump no. 104640-0096 (NP-VE4/10F1900RNP51)
Direction of rotation: rear end side clockwise

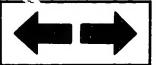
priection of fotation: rear end side ci	lockwise			
Prestroke setting: 0.18 - 0.22 mm	Test-nozzl	e holder combination: 1 688 901	000 Test pressure	line: 1 680 750 017
1. Setting values	Speed			Difference
	min-l		pressure - bar (mmHq)	
1-1 Timing device travel	1500	5.8 - 6.2 (mm)	pressure but timing	1007
1-2 Feed pump pressure	1500	$5.7 - 6.3 (kg/cm^2)$		
1-3 Full load delivery without charge	!-	, , , , , , , , , , , , , , , , , , ,		
air pressure	1000	53.1 - 54.1 (cc/1000 strokes)		3.5
Full load delivery with charge-ai	r	(33,733,733,733,733,733,733,733,733,733,		3.3
pressure		(cc/1000 strokes)		
1-4 Low-idle speed regulation	300	10.8 - 14.8 (cc/1000 strokes)		2.5
1-5 Start	100	over 78.0 (cc/1000 strokes)		[2.3
1-6 Maximum speed regulation	2100	19.1 - 25.1 (cc/1000 strokes)		
1-7 Load-dependent start of delivery		2011 (cc/1000 3t10ke3)		
1-8				}
2 7			L	4

<u>2. lest values</u>					
2-1 Timing device	N = min-1	1000	1500	1900	
	mm	2.4 - 3.6	5.7 - 6.3	7.6 - 8.8	
2-2 Feed pump	N = min-1	500	1500	1900	
	kg/cm ²	2.3 - 2.9	5.7 - 6.3	7.1 - 7.7	
2-3 Overflow rate	N = min-1	1000		· · · · · · · · · · · · · · · · · · ·	_
2.4. 0.15	cc/10s	5.3 - 97.0			

	1 11 -	11111-1	1000			1
***************************************		cc/10s	5.3 - 9	7.0		
2-4 Delivery rates						
Control lever position	Speed min-1	Delivery		Charge-air bar (mmHq)	pressure	Difference
End stop	1000	52.6 - 54 45.6 - 49	4.6	oar (mmrg/		(cc)
	1500 2100	50.3 - 54	4.3			
Shut-off	2200	19.1 - 29 below 6	o. I			
	300	0				
Idle stop	300 below 570	10.8 - 14	4.8			
2-5 Magnet	Cut-in vol	oltage max tage 24 -	c. 16 V 26 V			

3. Dim	ensions	_
K KF MS LDA	3.2 - 3.4 mm 5.7 - 5.9 mm 1.7 - 1.9 mm	
Angle o	of control lever	
α A	18.0 - 22.0 angle 5.7 - 8.3 mm	
β B	35.0 - 45.0 angle 11.2 - 14.5 mm	
Y C	- angle - mm	





Test oil: ISO 4113 od SAE J967d

ZEXEL - Test values

Distributor pumps

Engine: XA

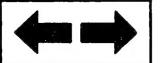
BOSCH no. 9 460 610 293 DKKC no. 104740-0153

Date: 15.4.1988 (0)
Company: MAZDA

							Compan	y: MAZDA
Injection pump no. 104640-0153			1300RNP130)				No:	4827 13 800B
Direction of rotation: rear end	side clockwi							
Prestroke setting: - mm		Test-nozzle	<u>holder combinat</u>	ion: 1 688	901 0	<u>00 Test pi</u>	essure 1	ine: 1 680 750 017
1. Setting values		Speed	Setting values		C	harge – air		Difference
		min-1			P	<u>ressure – bai</u>	(mmHg)	(cc)
1-1 Timing device travel		1000	2,3 - 2,7 (mr					
1-2 Feed pump pressure		1000	4,0 - 4,6 (kg	;/cm²)				
1-3 Full load delivery without	charge-							
air pressure		1000	44,3 - 45,3 (c	:/1000 stro	okes)			3, 0
Full load delivery with ch	arge-air						Î	
pressure				:/1000 stro				
1-4 Low-idle speed regulation		350	4,2 - 8,2 (c					2,0
1-5 Start		100	over 78,0 (c					
1-6 Maximum speed regulation	1	1380	12,1 - 18,1 (c	c/1000 stro	okes)			
1-7 Load-dependent start of de	livery		•					
1-8 2. Test values		 						
2-1 Timing device	N = min-1	1 1000	1300		1			
2-1 Timing device	m = mm-1	1 2 2 -						
2-2 Feed pump	N = min-1			1300	[3. Dimer	cions	
l 2 . ccd pomp	kg/c			5,1 - 5,7	7	<u> </u>	13 10113	
2-3 Overflow rate	$N = \min_{n=1}^{\infty}$							
	cc/10		_		į	l K	3, 2 - 3	3.4 mm
2-4 Delivery rates						ŘF	5,7 - 5	
	eed Deliv	ery rate	Charge-air pre	surelDiffe	erence	MS	1,5 - 1	
		•	bar (mmHq)	(cc)		LDA	-	
End stop 1	· ·	8 - 45,8					f control	lever
1		5 - 41,5				α		7,0 angle
•		7 - 48,7				Α	2.5 - 7	7.7 mm
		1 - 18,1				β	36,0-40	6,0 angle
		low 4,0				В	11, 4 - 1	5,0 mm
	350	0				Y	-	angle
		2 - 8, 2				C	-	mm
	500	0						
	t-in voltage							
Magnet Te	st voltage 1	2 - 14 V						

Test	va	lues

A3





ZEXEL - Test values

Distributor pumps Engine: 4D56

1/3 BOSCH no. 9 460 610 296 DKKC no. 104740-3612

Date: 15.4.1988
Company: MITSUBISHI (0)

Injection pump no. 104640-3332		(ND-VE#/10	NE 21 00 D N D # 2 2 1				<u>Compa</u>	
Direction of rotation: rear end			F2100RNP433)				No:	MD 103210
Prestroke setting: - mm	Side Clock		a haldar sambi	instion. S	1 600 001	000 Tost	220001120	line: 1 600 750 017
1. Setting values		Speed	e holder combi		1 000 901			line: 1 680 750 017
		min-1	Setting valu	ues		Charge - air		Difference
1-1 Timing device travel		1250	T=3,5 - 3,9	(mm)		pressure - l	Jai (mmiy)	1(00)
1-2 Feed pump pressure		1250	4,5 - 5,1					İ
1-3 Full load delivery without	charde-	1230	4,5 3,1	(kg/ciii-)				
air pressure	· • · · · · · · · · · · · · · · · · · ·	1250	45,3 - 46,3	(cc/1000	strokes)			
Full load delivery with ch	narge-air	1230	13,3 40,3	(667 1000	3 CT ORES /			3, 0
pressure				(cc/1000	strokes)			
1-4 Low-idle speed regulation		375	6,5 - 9,5					2.0
1-5 Start		100	63,0 - 83,0					2,0
1-6 Maximum speed regulation		2550	15,1 - 21,1			1		4, 0
1-7 Load-dependent start of de	elivery	1250	$T - 0, 6 \pm 0, 2$			1		4,0
1-8			, ,,, _ ,,,	(,				
2. Test values						•		
2-1 Timing device	N = min-	•	750	1250	2100	1		
		mm $[0,6-1,$	8 1,4 - 2,6	3, 3 - 4, 1	6,6 - 7,			
2-2 Feed pump	N = min-	_	1250	2100		3. Dir	mensions	
	kg/		5 4,5 - 5,1	6, 5 - 7, 1				
2-3 Overflow rate	N = min-							
	cc/1	Os 48, 0-92	, 0		1	_ K	3,2 -	3,4 mm
2-4 Delivery rates						_ KF	5,7 -	5,9 mm
		very rate	Charge-air p	pressure [Difference		1,1 -	1,3 mm
		1000 strokes) bar (mmHg)		(cc)	_ LDA		
		8 - 46,8				Angle	of contro	
		3 - 46, 3				α	55,0 - 6	33,0 angle
	ATTENDED TO STATE OF THE STATE	2 - 41,2				_ A	10.5 - 1	
		1 - 23,1				β		31,0 angle
		ow 5,0				_ <u>B</u>	12,5 - 1	
	375	0				- <u>Y</u>	-	angle
		ow 3,0				<u>C</u>		mm
	375 6,	0 - 10,0				-		
2-5 Cu	t in 14	0.1/				-		
	ut-in voltag							
riagnet 16	st voltage	12 - 14 V						

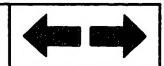
Test	val	lues

A5









(1) Stop the control lever at the appropriate spot in accordance with the following conditions.

Charge-air pressure:

mmHq

Pump speed:

1250

/min

Injection quantity:

 $35.7 \pm 0.5 \text{ cm}^3/1000 \text{ strokes}$

(2) When the control lever is in the position specified above (1), adjust the governor sleeve so that the timing device travel is as previously stipulated.

2. Checking load-dependent start of delivery

Stop the control lever at the appropriate spot in accordance with the following conditions, and check load-dependent start of delivery.

Position of control lever			Prescribed values		
Pump speed (1/min)	Injection quantity (cm ³ /1000 strokes)	Charge-air pressure (mmHg)	Timing device travel (mm)	Reduction of timing device travel (mm)	
1250	34.7 - 36.7	-	(3.1)	0.2 - 1.0	
1250	26.7 - 29.7	-	(2.3)	0.8 - 2.0	



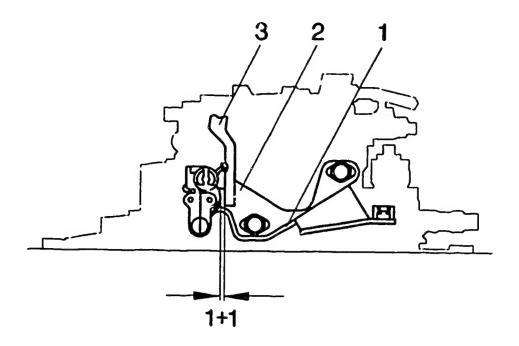


Fig. 1

104740-3612 3/3

l = bracket

2 = M-FICD lever
3 = control lever

- SETTING THE FICD INSTALLATION POSITION
- 1. Maintain control lever in the idle position.
- Set FICD bracket in such a way that the gap dimension between the control lever and the FICD lever equals 1+1 mm.



ZEXEL - Test values

Distributor pumps Engine: 4D56

1/2 BOSCH no. 9 460 610 297 DKKC no. 104740-3632

Date: 15.4.1988 (0)
Company: MITSUBISHI
No: MD 103206

Injection pump no. 104640-3342

2. Test values

(NP-VE4/10F2100RNP432)

Direction of rotation: rear end side clockwise Prestroke setting: - mm Test-nozzle holder combination: 1 688 901 000 Test pressure line: 1 680 750 017 1. Setting values Speed Setting values Charge - air Difference min-1 pressure - bar (mmHq) (cc) 1-1 |Timing device travel 1250 T=3,5-3,9 (mm)1-2 | Feed pump pressure 1250 $4,5-5,1 \text{ (kg/cm}^2)$ 1-3 Full load delivery without chargeair pressure 1250 45,3 - 46,3 (cc/1000 strokes) 3,0 Full load delivery with charge-air cressure (cc/1000 strokes) 1-4 |Low-idle speed regulation 6,5 - 9,5 (cc/1000 strokes) 375 2,0 1-5 | Start 100 63,0 - 83,0 (cc/1000 strokes) 1-6 | Maximum speed regulation 2550 15,1 - 21,1 (cc/1000 strokes) 4,0 Load-dependent start of delivery 1-7 1250 T - 0.6 + 0.2 (mm) 1-8

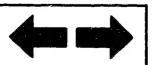
<u> </u>					
2-1 Timing device	N = min-1	500	750	1250	2100
	mm	0,6-1,8	1,4 - 2,6	3, 3 - 4, 1	6,6 - 7,8
2-2 Feed pump	N = min-1	600	1250	2100	
·	kg/cm ²	[2, 9 - 3, 5]	4,5 - 5,1	6,5-7,1	
2-3 Overflow rate	$N = \min_{n=1}^{\infty}$	1250			
:	cc/10s	48, 0-92, 0			
2 A Delineman					

		cc/10s 48,0-92,	01	1	- 1
2-4 Delivery rates			<u> </u>		
Control lever position	Speed min-1	Delivery rate (cc/1000 strokes)	Charge-air	pressure	Difference (cc)
End stop	1250 600 2100 2550 2900	44,8 - 46,8 42,3 - 46,3 37,2 - 41,2 13,1 - 23,1 below 5,0	July Committee		
Shut-off Idle stop	375 600 375	0 below 3, 0 6, 0 - 10, 0			
2-5 Magnet	Cut-in Test vo	voltage max. 8 V ltage 12 - 14 V			

3. Dime	ensions	
K KF MS LDA	3,2 - 3,4 5,7 - 5,9 1,1 - 1,3	
Angle o	of control le	ver
α	55,0 - 63,0	angle
_A	10.5 - 16.0	mm
β B	41,0 - 51,0	angle
В	12.5 - 16.5	mm
C C	-	angle
		mm

Test values

ZEXEL-Distributor pumps



A11

Test values



(1) Stop the control lever at the appropriate spot in accordance with the following conditions.

Charge-air pressure:

mmHg

Pump speed:

1250

/min

Injection quantity:

 $35,7 \pm 0,5 \text{ cm}^3/1000 \text{ strokes}$

(2) When the control lever is in the position specified above (1), adjust the governor sleeve so that the timing device travel is as previously stipulated.

2. Checking load-dependent start of delivery

Stop the control lever at the appropriate spot in accordance with the following conditions, and check load-dependent start of delivery.

Pos	ition of control lever		Prescribed va	lues
Pump speed (1/min)	Injection quantity (cm ³ /1000 strokes)	Charge-air pressure (mmHg)	Timing device travel (mm)	Reduction of timing device travel (mm)
1250	34,7 - 36,7	-	(3,1)	0,2 - 1,0
1250	26,7 - 29,7	-	(2, 3)	0,8 - 2,0

A13

Test oil: ISO 4113 od SAE J967d

ZEXEL - Test values

Distributor pumps Engine: 4D56

BOSCH no. 9 460 610 298 DKKC no. 104740-3642 15.4.1988 Date: (0)Company: MITSUBISHI No: MD 103207

Injection pump no. 104640-3352

(NP-VE4/10F2100RNP430)

Direction of rotation: rear end side clockwi	se			
Prestroke setting: - mm	Test-nozz1	e holder combination: 1 688 901	000 Test pressure	line: 1 680 750 017
1. Setting values	Speed		·	Difference
	min-1		pressure - bar (mmHq)	
1-1 Timing device travel	1250	T=3,5-3,9 (mm)	540 - 560	
1-2 Feed pump pressure	1250	4,5 - 5,1 (kg/cm ²)	540 - 560	
1-3 Full load delivery without charge-	1	(Kg/ciii)	340 300	
air pressure	1250	61,4 - 62,4 (cc/1000 strokes)	540 - 560	11 6
Full load delivery with charge-air		, (CC/1000 SCIONES)	340 300	4, 5
pressure	750	60,4 - 61,4 (cc/1000 strokes)	320 - 340	
1-4 Low-idle speed regulation	375	6,5 - 9,5 (cc/1000 strokes)	320 - 340	
1-5 Start	100			2,0
1-6 Maximum speed regulation	2650	63,0 - 83,0 (cc/1000 strokes)		
1-7 Load-dependent start of delivery		22,2 - 28,2 (cc/1000 strokes)		5 <i>,</i> 5
1-8	1250	T-0, 6 + 0, 2 (mm)	540 - 560	
				

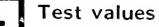
2. Test values 2-1 Timing device $N = \min_{n=1}^{\infty}$ 500 750 1250 2100 0,6-1,8 1,4-2,6 3,3-4,1 6,6-7,82-2 Feed pump N = min-1600 1250 2100 $\frac{\text{kg/cm}^2}{\text{cm}^2}$ 2, 9 - 3, 5 4, 5 - 5, 1 6, 5 - 7, 1 2-3 Overflow rate N = min-11250 48 0-92 0 cc/10c

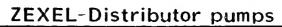
		CC/10S [48, 0-92,	U	
2-4 Delivery rates				
Control lever position	Speed min-1	Delivery rate (cc/1000 strokes)	Charge-air pressure	
End stop	1250 600 750 2100 2650 3050	60, 9 - 62, 9 45, 8 - 50, 8 59, 9 - 61, 9 52, 8 - 57, 8 20, 2 - 30, 2 below 5, 0	540 - 560 0 320 - 340 540 - 560 540 - 560 540 - 560	(cc)
Shut-off	375	0	0	
Idle stop	600 375	below 3, 0 6, 0 - 10, 0	0	
2-5 Magnet		l oltage max. 8 V tage 12 - 14 V		

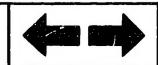
3. Dime	ensions	
K	3, 2 - 3, 4	mm
KF	5,7 - 5,9	
MS	0,9 - 1,1	mm
_LDA	3,6 - 3,8	mm
Angle o	of control le	ver
α	55,0 - 63,0	angle
Α	10,5 - 16,0	mm
β	40,0 - 50,0	angle
В	12.1 - 16.1	mm
Υ	-	angle
С	_	mm

Test values A14









Note:

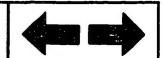
• After setting the full-load at 1250/min, adjust the full-load from 750/min and the accelerator pressure from 0.45 kg/cm² to 330 mmHg, and then regulate the injection quantity with the accelerator-adjustment screw.

Note:

Setting the timing device stroke:

Fix LDA at 550 mmHg (0.75 kg/cm^2)

and put control lever in the full-load delivery position, then set timing device stroke.



(1) Stop the control lever at the appropriate spot in accordance with the following conditions.

Charge-air pressure:

mmHg

Pump speed:

1250

/min

Injection quantity:

$$50,3 \pm 0,5 \, \text{cm}^3/1000 \, \text{strokes}$$

(2) When the control lever is in the position specified above (1), adjust the governor sleeve so that the timing device travel is as previously stipulated.

2. Checking load-dependent start of delivery

Stop the control lever at the appropriate spot in accordance with the following conditions, and check load-dependent start of delivery.

Pos	ition of control lever		Prescribed va	alues
Pump speed (1/min)	Injection quantity (cm ³ /1000 strokes)	Charge-air pressure (mmHg)	Timing device travel (mm)	Reduction of timing device travel (mm)
1250	49,3 - 51,3	540 - 560	(3,1)	0,2 - 1,0
1250	38,7 - 41,7	540 - 560	(2, 3)	0,8-2,0

A18

Test values

Distributor pumps Engine: 4D56

BOSCH no. 9 460 610 289 104740-3652 DKKC no. 15.4.1988 Date: MITSUBISHI Company: No: MD 103208

Injection pump no. 104640-3352

(NP-VE4/10F2100RNP430)

Direction of rotation: rear	end	side clockwise
-----------------------------	-----	----------------

	roke setting: - mm	Test-nozz1	e holder combination: 1 688 901	000 Test pressure	line: 1 680 750 017
1.	Setting values	Speed			Difference
		min-1		pressure - bar (mmHg)	(cc)
	Timing device travel	1250	T = 3, 5 - 3, 9 (mm)	540 - 560	
1-2	Feed pump pressure	1250	$4,5-5,1 \text{ (kg/cm}^2\text{)}$	540 - 560	
1-3	Full load delivery without charge-	1	, , , , , , , ,	3.0 300	
1	air pressure	1250	61,4 - 62,4 (cc/1000 strokes)	540 - 560	<i>1</i> . 5
1	Full load delivery with charge-air	1		340 300	4, 5
	pressure	750	60,4 - 61,4 (cc/1000 strokes)	320 - 340	
1-4	Low-idle speed regulation	375	6,5 - 9,5 (cc/1000 strokes)		2.0
1-5	Start	100	63,0 - 83,0 (cc/1000 strokes)		2,0
1-6	Maximum speed regulation	2650	22, 2 - 28, 2 (cc/1000 strokes)		5.5
1-7	Load-dependent start of delivery	1250	T-0,6 + 0,2 (mm)	340 300	5,5
1-8			. 5,5 - 5,2 ()		
		+	 		

2]	Γe_	5	_t	$_{v}$ a	1 u	e s	

2-1 Timing device	N = min-1	500	750	1250	2100
	mm	0,6 - 1,8	1,4 - 2,6	3, 3 - 4, 1	6,6 - 7,8
2-2 Feed pump	N = min-1	600	1250	2100	
	kg/cm ²	2,9-3,5	4, 5 - 5, 1	6,5 - 7,1	
2-3 Overflow rate	N = min-1	1250			
	cc/10s	48,0-92,0			

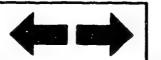
2-4	<u>Del</u>	iv	ery	rat	tes	

<u>2-4 Delivery rates</u>					
Control lever position	Speed min-1	Delivery rate (cc/1000 strokes)	Charge-air	•	Difference (cc)
End stop	1250 600 750 2100 2650 3050	60,9 - 62,9 45,8 - 50,8 59,9 - 61,9 52,8 - 57,8 20,2 - 30,2 below 5,0	540 - 560 0 320 - 340 540 - 560 540 - 560 540 - 560		
Shut-off	375	0			
Idle stop	600 375	below 3,0 6,0 - 10,0	0		
2-5 Magnet	Cut-in voltage max. 8 V Test voltage 12 - 14 V				

3. Dim	ensions	
K KF MS LDA Angle	3,2 - 3,4 5,7 - 5,9 0,9 - 1,1 3,6 - 3,8	mm mm mm mm
α		angle
_A	10, 5 - 16, 0	mm
β	40,0 - 50,0	angle
В	12, 1 - 16, 1	mm
Υ	-	angle
С	. - ,	mm

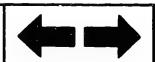
Test values

ZEXEL-Distributor pumps



A 20

Test values



Note:

After setting the full-load at 1250/min, ajust the full-load from 750/min and the accelerator pressure from 0.45 kg/cm² to 330 mmHg, and then regulate the injection quantity with the acceleratoradjustment screw.

Note:

Setting the timing device stroke:

Fix LDA at 550 mmHg (0.75 kg/cm^2)

and put control lever in the full-load delivery position, then set timing device stroke.



(1) Stop the control lever at the appropriate spot in accordance with the following conditions.

Charge-air pressure:

mmHg

Pump speed:

1250

/min

Injection quantity:

$$50,3 \pm 0,5 \text{ cm}^3/1000 \text{ strokes}$$

(2) When the control lever is in the position specified above (1), adjust the governor sleeve so that the timing device travel is as previously stipulated.

2. Checking load-dependent start of delivery

Stop the control lever at the appropriate spot in accordance with the following conditions, and check load-dependent start of delivery.

Position of control lever			Prescribed values		
Pump speed (1/min)	Injection quantity (cm ³ /1000 strokes)	Charge-air pressure (mmHg)	Timing device travel (mm)	Reduction of timing device travel (mm)	
1250	49, 3 - 51, 3	540 - 560	(3,1)	0,2-1,0	
1250	38,7 - 41,7	540 - 560	(2, 3)	0,8-2,0	

Test values

Distributor pumps Engine: 4D56T

BOSCH no. 9 460 610 299

DKKC no. 104740-3662

Date: 15.4.1988 (0)

Date: 15.4.1988 (Company: MITSUBISHI
No: MD 103209

Injection pump no. 104640-3362

(NP-VE4/10F2100RNP431)

restroke setting: - mm	<u>Test-nozz</u>	le holder combination: 1 688 901	000 Test pressure	<u>line: 1 680 750 017</u>
1. Setting values	Speed min-1	Setting values		Difference
1-1 Timing device travel	1250	T = 3, 5 - 3, 9 (mm)	540 - 560	(00)
1-2 Feed pump pressure1-3 Full load delivery without charge-	1250	4,5 - 5,1 (kg/cm ²)	540 - 560	
air pressure Full load delivery with charge-air	1250	61,4 - 62,4 (cc/1000 strokes)	540 - 560	4, 5
pressure	750	60,4 - 61,4 (cc/1000 strokes)	320 - 340	
1-4 Low-idle speed regulation 1-5 Start	375 100	6,5 - 9,5 (cc/1000 strokes) 63,0 - 83,0 (cc/1000 strokes)	0	2,0
1-6 Maximum speed regulation	2650	22,2 - 28,2 (cc/1000 strokes)		5,5
1-7 Load-dependent start of delivery1-8	1250	$T-0,6 \pm 0,2 \text{ (mm)}$	540 - 560	

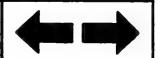
2-1 Timing device	N = min-1	500	750	1250	2100
	mm	0,6 - 1,8	1,4-2,6	3, 3 - 4, 1	6,6 - 7,8
2-2 Feed pump	N = min-1	600	1250	2100	
	kg/cm ²	2,9 - 3,5	4,5 - 5,1	6,5-7,1) `
2-3 Overflow rate	N = min-1	1250			
		48,0-92,0			

		CC/10s 48, 0-92, 0	0(1	
2-4 Delivery rates					
Control lever position	Speed min-1	Delivery rate (cc/1000 strokes)	Charge-air bar (mmHg)	pressure	Difference (cc)
End stop	1250 600 750 2100 2650 3050	60,9 - 62,9 45,8 - 50,8 59,9 - 61,9 52,8 - 57,8 20,2 - 30,2 below 5,0	540 - 560 0 320 - 340 540 - 560 540 - 560 540 - 560		
Shut-off	375	0	0		
Idle stop	600 375	below 3, 0 6, 0 - 10, 0	0		
2-5 Magnet	•	voltage max. 8 V oltage 12 - 14 V	ļ		

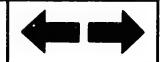
3. Dim	ensions	
K KF MS LDA	3, 2 - 3, 4 5, 7 - 5, 9 0, 9 - 1, 1 3, 6 - 3, 8	
	of control le	
α A	55,0 - 63,0 10,5 - 16,0	angle _mm
	40,0 - 50,0	
β B	12,1 - 16,1	mm
Υ	-	angle
C		mm

Test values

ZEXEL-Distributor pumps



B2 Test values



Note:

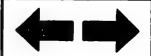
• After setting the full-load at 1250/min, ajust the full-load from 750/min and the accelerator pressure from 0.45 kg/cm² to 330 mmHg, and then regulate the injection quantity with the acceleratoradjustment screw.

Note:

Setting the timing device stroke:

Fix LDA at 550 mmHg (0.75 kg/cm^2)

and put control lever in the full-load delivery position, then set timing device stroke.



(1) Stop the control lever at the appropriate spot in accordance with the following conditions.

Charge-air pressure:

540 - 560

mmHg

Pump speed:

1250

/min

Injection quantity:

 $50,3 \pm 0,5 \, \text{cm}^3/1000 \, \text{strokes}$

(2) When the control lever is in the position specified above (1), adjust the governor sleeve so that the timing device travel is as previously stipulated.

2. Checking load-dependent start of delivery

Stop the control lever at the appropriate spot in accordance with the following conditions, and check load-dependent start of delivery.

Position of control lever			Prescribed values		
Pump speed (1/min)	Injection quantity (cm ³ /1000 strokes)	Charge-air pressure (mmHg)	Timing device travel (mm)	Reduction of timing device travel (mm)	
1250	49, 3 - 51, 3	540 - 560	(3,1)	0,2-1,0	
1250	38,7 - 41,7	540 - 560	(2,3)	0,8-2,0	

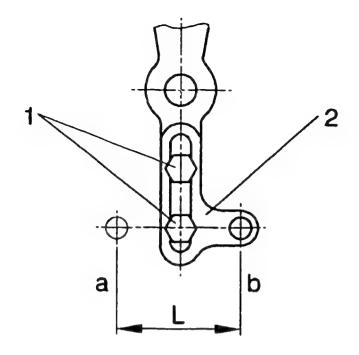


Fig. 2

104740-3662 4/4

1 = screw

a = full-load

2 = A/T lever

b = idle

- SETTING A/T CONNECTING LEVER
- Turn control lever from the idle position to full-load position, and check that the travel (L) of the A/T lever equals

 $32.9 \pm 1 \, \text{mm}$.

- When the measurement L is not as prescribed, loosen the screw and adjust the A/T lever.
- 3. Following adjustment, tighten screw.



ZEXEL - Test values

Distributor pumps Engine: 4D56

pumps 6 1/3

BOSCH no. 9 460 610 300

DKKC no. 104740-3672

Date: 15.4.1988 (0)

Company: MITSUBISHI

No: MD 106444

Injection pump no. 104640-3372 (N

(NP-VE4/10F2100RNP460)

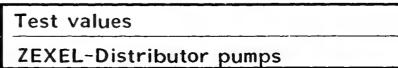
1. Setting values	Speed min-1	Setting values		line: 1 680 750 017
 1-1 Timing device travel 1-2 Feed pump pressure 1-3 Full load delivery without charge- 	1250 1250	T=3,5 - 3,9 (mm) 4,5 - 5,1 (kg/cm ²)	bressure - bar (minity)	
air pressure Full load delivery with charge-air pressure	1250	45,3 - 46,3 (cc/1000 strokes) (cc/1000 strokes)	Ì	3, 0
1-4 Low-idle speed regulation 1-5 Start 1-6 Maximum speed regulation	375 100	6,5 - 9,5 (cc/1000 strokes) 63,0 - 83,0 (cc/1000 strokes)		2,0
-7 Load-dependent start of delivery	2550 1250	15,1 - 21,1 (cc/1000 strokes) T-0,4 + 0,8 (mm)		4, 0

2-1 Timing device	N = min-1	500	750	1250	2100 !
	mm	0,6-1,8	1,4 - 2,6	3, 3 - 4, 1	6,6 - 7,8
2-2 Feed pump	N = min-1	600	1250	2100	
	kg/cm ²	[2, 9 - 3, 5]	4,5 - 5,1	6,5 - 7,1	
2-3 Overflow rate	N = min-l	1250			
	cc/10s	48, 0-92, 0			İ

		1 =	1230	1	ŧ	1
		cc/10s	48, 0-92, 0			İ
2-4 Delivery rates						
Control lever position	Speed min-1	Delivery	rate strokes)	Charge-air	pressure	Difference
End stop	1250 600 2100 2550	44, 8 - 1 42, 3 - 1 37, 2 - 1 13, 1 - 2	16, 8 16, 3 11, 2 23, 1	Dat (Iming)		<u>(cc)</u>
Shut-off	<u>2900</u> 375	below 0	5,0			
Idle stop	600 375	below 6, 0 - 1	3, 0 0, 0			
2-5 Magnet	Cut-ir Test v	voltage ma	x. 8 V			

3. Di	mensions 	
K	3, 2 - 3, 4	mm
KF	5,7 - 5,9	
MS	1,1 - 1,3	mm
LDA		
Angle	of control le	ver
α	55,0 - 63,0	angle
Α	10.5 - 16.0	mm
β	41,0 - 51,0	angle
B	12,5 - 16,5	mm
Υ	-	angle
C		mm

Test values	4
ZEXEL-Distributor pumps	4



(1) Stop the control lever at the appropriate spot in accordance with the following conditions.

Charge-air pressure:

-

mmHg

Pump speed:

1250

/min

Injection quantity:

 $35,7 \pm 0,5 \text{ cm}^3/1000 \text{ strokes}$

(2) When the control lever is in the position specified above (1), adjust the governor sleeve so that the timing device travel is as previously stipulated. (Page 1/3).

2. Checking load-dependent start of delivery

Stop the control lever at the appropriate spot in accordance with the following conditions, and check load-dependent start of delivery.

Position of control lever			Prescribed values		
Pump speed (1/min)	Injection quantity (cm ³ /1000 strokes)	Charge-air pressure (mmHg)	Timing device travel (mm)	Reduction of timing device travel (mm)	
1250	34,7 - 36,7	-	(3,1)	0,2-1,0	
1250	26,7 - 29,7	-	(2, 3)	0,8-2,0	

Test values

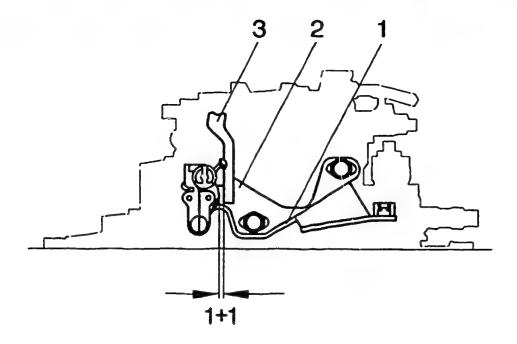


Fig. 3

104740-3672 3/3

1 = bracket

2 = M-FICD lever

3 = control lever

- SETTING THE FICD INSTALLATION POSITION
- 1. Maintain control lever in the idle position.
- Set FICD bracket in such a way that the gap dimension between the control lever and the FICD lever equals 1+1 mm.





ZEXEL - Test values

Distributor pumps

Engine: 4D56

BOSCH no. 9 460 610 301

DKKC no. 104740-3682 Date: 15.4.1988 (0

Company: MITSUBISHI
No: MD 106426

Injection pump no. 104640-3382 (NI Direction of rotation: rear end side clockwise

(NP-VE4/10F2100RNP461)

Prestroke setting: - mm	Test-nozzl	e holder combination: 1 688 901	000 Test pressure	line: 1 680 750 017
1. Setting values	Speed			Difference
	min-1		pressure - bar (mmHq)	
1-1 Timing device travel	1250	T=3,5 - 3,9 (mm)		
1-2 Feed pump pressure	1250	4,5 - 5,1 (kg/cm ²)		į .
1-3 Full load delivery without charge-		, , , , , , , , , , , , , , , , , , ,		
air pressure	1250	45,3 - 46,3 (cc/1000 strokes)		
Full load delivery with charge-air		10,0 10,0 (66,1000 36,000)		3, 0
pressure	1	(cc/1000 strokes)		
1-4 Low-idle speed regulation	375	6,5 - 9,5 (cc/1000 strokes)	1	
1-5 Start	100	63,0 - 83,0 (cc/1000 strokes)	•	2,0
1-6 Maximum speed regulation	2550	15,1 - 21,1 (cc/1000 strokes)		
1-7 Load-dependent start of delivery	P			4, 0
1-8	1230	T - 0, 6 + 0, 2 (mm)		
2 Test values			!	

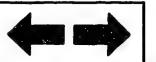
2-1 Timing device	N = min-1	500	750	1250	2100
	mm	0,6-1,8	1,4-2,6	3, 3 - 4, 1	6,6 - 7,8
2-2 Feed pump	N = min-1	600	1250	2100	
	kg/cm ²	[2, 9 - 3, 5]	4,5 - 5,1	6,5-7,1	
2-3 Overflow rate	N = min-1	1250			
	cc/10s	48,0-92,0			

	1	120 140 0 00		l .	l I
		cc/10s 48,0-92,	01		1
2-4 Delivery rates					
Control lever position	Speed	Delivery rate	Charge-air	pressure	
	min-1	(cc/1000 strokes)	bar (mmHq)	<u>}</u>	(cc)
End stop	1250	44, 8 - 46, 8			
	600	42,3 - 46,3		1	
	2100	37,2 - 41,2			
	2550	14,6 - 21,6		i	
	2900	below 5,0			
Shut-off	375	0			
Idle stop	600	below 3,0			
	375	6,0-10,0			
2-5	Cut-in	voltage max. 8 V	•		
_Magnet	Test vo	<u> 1tage 12 - 14 V</u>			

3. Dim	ensions	
K KF MS LDA	3,2 - 3,4 5,7 - 5,9 1,1 - 1,3	mm
Angle o	of control le 19,0 - 27,0	
Λ	12.4 - 17.8	
β	41,0 - 51,0	angle
<u>B</u>	12,1 - 16,1	mm
Y	-	angle
_C		mm
ļ		

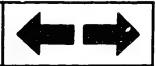
Test values

ZEXEL-Distributor pumps



B13

Test values



(1) Stop the control lever at the appropriate spot in accordance with the following conditions.

Charge-air pressure:

mmHg

Pump speed:

1250

/min

Injection quantity:

 $35,7 \pm 1 \text{ cm}^3/1000 \text{ strokes}$

(2) When the control lever is in the position specified above (1), adjust the governor sleeve so that the timing device travel is as previously stipulated. (Page 1/2).

2. Checking load-dependent start of delivery

Stop the control lever at the appropriate spot in accordance with the following conditions, and check load-dependent start of delivery.

Position of control lever			Prescribed values		
Pump speed (1/min)	Injection quantity (cm ³ /1000 strokes)	Charge-air pressure (mmHg)	Timing device travel (mm)	Reduction of timing device travel (mm)	
1250	34,7 - 36,7	-	(3,1)	0,2-1,0	
1250	26,7 - 29,7	-	(2,3)	θ, 8 - 2, 0	

Test values

Test oil: ISO 4113 od SAE J967d ZEXEL - Test values

Distributor pumps Engine: 4D56 1/2 BOSCH no. 9 460 610 318 DKKC no. 104740-3692 Date: 15.4.1988 (0) Company: MITSUBISHI

MD 109319

No:

Injection pump no. 104640-3382

(NP-VE4/10F2100RNP461)

Direction of rotation: rear end side clock	wise .			
Prestroke setting: - mm	<u>Test-noz</u>	<u>zle holder combination: 1 688 901</u>	000 Test pressure	line: 1 680 750 017
1. Setting values	Speed min-1	Setting values		Difference
1-1 Timing device travel	1250	T=3,5-3,9 (mm)		
1-2 Feed pump pressure 1-3 Full load delivery without charge-	1250	4,5 - 5,1 (kg/cm ²)		
air pressure Full load delivery with charge-air	1250	45,3 - 46,3 (cc/1000 strokes)		3, 0
pressure		(cc/1000 strokes)) [1
1-4 Low-idle speed regulation	375	6,5 - 9,5 (cc/1000 strokes)) į	2,0
1-5 Start	100	63,0 - 83,0 (cc/1000 strokes))	1
1-6 Maximum speed regulation	2550	15,1 - 21,1 (cc/1000 strokes)) [4,0
1-7 Load-dependent start of delivery	1250	$T - 0, 6 \pm 0, 2 $ (mm)		

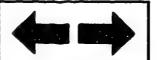
2. Test values					
2-1 Timing device	$N = \min_{n=1}^{\infty}$	500	750	1250	2100
	mm	0,6-1,8	1,4-2,6	3, 3 - 4, 1	6,6 - 7,8
2-2 Feed pump	N = min-1	600	1250	2100	
	kq/cm ²	2,9-3,5	4,5 - 5,1	6,5-7,1	l
2-3 Overflow rate	N = min-1	1250			
2 A Dolivany natao	cc/10s	48, 0-92, 0			

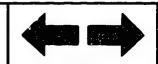
	1 ''	- ,,,,,		I .	1
		cc/10s 48,0-92,	0		1
2-4 Delivery rates					
Control lever position	Speed	Delivery rate	Charge-air	pressure	ifference
·	min-1	(cc/1000 strokes)	bar (mmHg)	•	cc)
End stop	1250	44,8 - 46,8			
	600	42,3 - 46,3		1	
	2100	37, 2 - 41, 2		1	
	2550	14,6 - 21,6	1	l	
	2900	below 5,0	1	•	
Shut-off	375	0			
Idle stop	600	below 3,0			
~	375	6,0-10,0		ł	
2-5	Cut-in	voltage max. 8 V			
Magnet	Test vo	<u> 1tage 12 - 14 V</u>			

3. Dime	3. Dimensions				
K KF MS LDA	3,2 - 3,4 5,7 - 5,9 1,1 - 1,3				
Angle d	of control le				
α	19,0 - 27,0	angle			
Α	12,4 - 17,8				
β	41,0 - 51,0	angle			
В	12,1 - 16,1	mm			
Υ	-	angle			
C		mm			

Test	va	lues

B16





(1) Stop the control lever at the appropriate spot in accordance with the following conditions.

Charge-air pressure:

mmHq

Pump speed:

1250

/min

B19

Injection quantity:

 $35,7 \pm 1 \text{ cm}^3/1000 \text{ strokes}$

(2) When the control lever is in the position specified above (1), adjust the governor sleeve so that the timing device travel is as previously stipulated. (Page 1/2).

2. Checking load-dependent start of delivery

Stop the control lever at the appropriate spot in accordance with the following conditions, and check load-dependent start of delivery.

Position of control lever			Prescribed values		
Pump speed (1/min)	Injection quantity (cm ³ /1000 strokes)	Charge-air pressure (mmHg)	Timing device travel (mm)	Reduction of timing device travel (mm)	
1250	34,7 - 36,7	-	(3,1)	0,2-1,0	
1250	26,7 - 29,7	-	(2, 3)	0,8-2,0	

Distributor pumps Engine: 4D56

BOSCH no. 9 460 610 291

DKKC no. 104740-3712

Date: 15.4.1988 (0)

Company: MITSUBISHI

No: MD 106446

Injection pump no. 104640-3392

(NP-VE4/10F2100RNP462)

Direc	tion of rotation: rear end side clockwi	se			
	roke setting: - mm	Test-nozzl	e holder combination: 1 688 901	000 Test pressure	line: 1 680 750 017
1.	Setting values	Suseq		Charge - air	Difference
I		<u>501.0−1</u>		pressure - bar (mmHq)	l(cc)
1-1	Timing device travel	1250	T=3, 5-3, 9 (mm)	540 - 560	
1-2	Feed pump pressure	1250	4,5 - 5,1 (kg/cm ²)	540 - 560	
1-3	Full load delivery with charge-air		(Kg/ Ciii)	3.0 300	
1	air pressure	1250	61,4 - 62,4 (cc/1000 strokes)	540 - 560	" =
l	Full load delivery with charge-air		, (CC) 1000 3110KES)	340 - 300	4,5
	pressure	750	60,4 - 61,4 (cc/1000 strokes)	320 - 340	
114			CETTOOD STROKES	320 - 340	
	Low-idle speed regulation	375	6,5 - 9,5 (cc/1000 strokes)	0	2,0
_	Start	100	63,0 - 83,0 (cc/1000 strokes)	l 0	Ì
1-6	Maximum speed regulation	2650	22,2 - 28,2 (cc/1000 strokes)		5,5
	Load-dependent start of delivery	1250	T-0, 6+0, 2 (mm)	540 - 560	3,3
1-8			(,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	340 300	

2. Test values

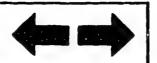
2-1 Timing device	N = min-1	500	750	1250	2100
	mm	0,6-1,8	1, 4 - 2, 6	3, 3 - 4, 1	6, 6 - 7, 8
2-2 Feed pump	N = min-1	600	1250	2100	
	kg/cm ²	2,9 - 3,5	4, 5 - 5, 1	6, 5 - 7, 1	
2-3 Overflow rate	N = min-1	1250			
	cc/10s	48, 0-92, 0			

2-4 Delivery rates		CC/10s 40, 0 32,		
Control lever position	Speed min-1	Delivery rate (cc/1000 strokes)	Charge-air pressure	Difference (cc)
End stop	1250 600 750 2100 2650 3050	60, 9 - 62, 9 45, 8 - 50, 8 59, 9 - 61, 9 52, 8 - 57, 8 20, 2 - 30, 2 below 5, 0	540 - 560 0 320 - 340 540 - 560 540 - 560 540 - 560	(()
Shut-off Idle stop	375 600 375	0 below 3, 0 6, 0 - 10, 0	0 0 0	
2-5 Magnet	Cut-in v	voltage max. 8 V tage 12 - 14 V		

3. Dim	ensions	
K KF MS LDA	3,2 - 3,4 5,7 - 5,9 0,9 - 1,1 3,6 - 3,8	mm mm
Angle (of control le	
α	19,0 - 27,0	
_A	10, 5 - 16, 0	mm
β	40,0 - 50,0	angle
_B	12.1 - 16.1	mm
Υ	-	angle
C		mm
	-	

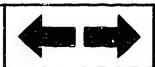
Test values

ZEXEL-Distributor pumps



B 21

Test values



Note:

• After setting the full-load at 1250/min, adjust the full-load from 750/min and the accelerator pressure from 0,45 kg/cm² to 330 n.mHg, and then regulate the injection quantity with the accelerator-adjustment screw.

Note:

• Setting the timing device stroke:

Fix LDA at 550 mmHg (0,75 kg/cm^2)

and put control lever in the full-load delivery position, then set timing device stroke.

- SETTING LOAD-DEPENDENT START OF DELIVERY
 - 1. To set
 - (1) Stop the control lever at the appropriate spot in accordance with the following conditions.

Charge-air pressure:

540 - 560

mmHg

Pump speed:

1250

/min

Injection quantity:

 $50,3 \pm 0,5 \, \text{cm}^3/1000 \, \text{strokes}$

- (2) When the control lever is in the position specified above (1), adjust the governor sleeve so that the timing device travel is as previously stipulated (page 1/2).
- 2. Checking load-dependent start of delivery

Stop the control lever at the appropriate spot in accordance with the following conditions, and check load-dependent start of delivery.

Position of control lever			Prescribed values		
Pump speed (1/min)	Injection quantity (cm ³ /1000 strokes)	Charge-air pressure (mmHg)	Timing device travel (mm)	Reduction of timing device travel (mm)	
1250	49, 3 - 51, 3	540 - 560	(3,1)	0,2-1,0	
1250	38,7 - 41,7	540 - 560	(2,3)	0,8-2,0	

ZEXEL-Distributor pumps



B23

Test values



Distributor pumps Engine: 4D56T

BOSCH no. 9 460 610 302

DKKC no. 104740-3722

Date: 15.4.1988 (0)

Company: MITSUBISHI
No: MD 106429

Injection pump no. 104640-3402
Direction of rotation: rear and side

(NP-VE4/10F2100RNP463)

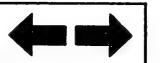
Prestroke setting: - mm	Test-nozz	<u>le holder combination: 1 688 901</u>	000 Test pressure	line: 1 680 750 017
1. Setting values	Speed	Setting values	Charge - air	Difference
1 1 Timing double 1	min-1		<u> pressure – bar (mmHq)</u>	(cc)
1-1 Timing device travel	1250	T=3, 5-3, 9 (mm)	540 - 560	
1-2 Feed pump pressure	1250	4,5 - 5,1 (kg/cm ²)	540 - 560	
1-3 Full load delivery with charge-air		(Kg/ cm/)	340 300	
air pressure	1250	61,4 - 62,4 (cc/1000 strokes)	ENO ECO	1
Full load delivery with charge-air	1.200	con strokes)	540 - 560	4,5
pressure	750	60,4 - 61,4 (cc/1000 strokes)	320 - 340	
1-4 Low-idle speed regulation	375	6,5 - 9,5 (cc/1000 strokes)	320 340	2.0
1-5 Start	100	63 0 - 93 0 (cc/1000 strokes)	0	2,0
1-6 Maximum speed regulation		63,0 - 83,0 (cc/1000 strokes)	0	
i-o maximum speed regulation	2650	22,2 - 28,2 (cc/1000 strokes)	540 - 560	5,5
1-7 Load-dependent start of delivery	1250	T-0, 6 + 0, 2 (mm)	540 - 560	

2. 1 e s t values					
2-1 Timing device	N = min-1	500	750	1250	2100
		0,6-1,8	1, 4 - 2, 6		6,6 - 7,8
2-2 Feed pump	N = min-1	600	1250	2100	
		2,9 - 3,5	4, 5 - 5, 1	6,5-7,1	
2-3 Overflow rate	N = min-1	1250			
		48, 0-92, 0			

2-3 Overflow rate		= min-1	1250		
		cc/10s	48, 0-92,	0	
2-4 Delivery rates					
Control lever position	Speed	Delivery	rate	Charge-air pressure	Difference
	min-l	(cc/1000)	strokes)	bar (mmHg)	(cc)
End stop	1250	60,9-6	52.9	540 - 560	
	600	45,8 - 5		0	
	750	59,9 - 6		320 - 340	<u> </u>
	2100	52,8 - 5	57, 8	540 - 560	
	2650 3050	20,2 - 3 below		540 - 560 540 - 560	
Shut-off	375	0	37 0	0	
Idle stop	600	below	3, 0	0	
	375	6,0-1	0,0	0	İ
2-5	Cut-in	voltage max	x. 8 V		
Magnet	Test v	oltage 12 -	14 V		

3. Din	nensions	
K	3,2 - 3,4	mm
KF	5,7 - 5,9	mm
MS	0,9 - 1,1	mm
LDA	3,6 - 3,8	mm
Angle	of control le	ver
α	19,0 - 27,0	angle
Α	10,5 - 16,0	
β	40,0 - 50,0	angle
В	12.1 - 16.1	
Υ	-	angle
C	-	mm

Test values





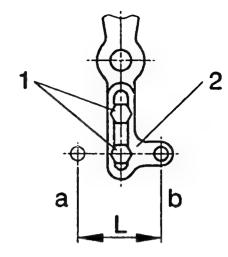


Note:

• After setting the full-load at 1250/min, adjust the full-load from 750/min and the accelerator pressure from

0,45 kg/cm² to 330 mmHg,

and then regulate the injection quantity with the accelerator-adjustment screw.



Note:

• Setting the timing device stroke:

Fix LDA at

550 mmHq (0,75 kg/cm²)

and put control lever in the full-load delivery position, then set timing device stroke.

Fig. 4

- SETTING A/T CONNECTING LEVER
 - 1. Turn control lever from the idle position to full-load position, and check that the travel (L) of the A/T lever equals

32, 9 + 1 mm.

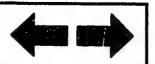
- 2. When the measurement L is not as prescribed, loosen the screw and adjust the A/T lever.
- 3. Following adjustment, tighten screw.

1 = screw

2 = A/T lever

a = full-load

b = idle





(1) Stop the control lever at the appropriate spot in accordance with the following conditions.

Charge-air pressure:

540 - 560

mmHg

Pump speed:

1250

/min

Injection quantity:

 $50,3 \pm 0,5 \text{ cm}^3/1000 \text{ strokes}$

(2) When the control lever is in the position specified above (1), adjust the governor sleeve so that the timing device travel is as previously stipulated.

2. Checking load-dependent start of delivery

Stop the control lever at the appropriate spot in accordance with the following conditions, and check load-dependent start of delivery.

Pos	sition of control lever	Prescribed values		
Pump speed (1/min)	Injection quantity (cm ³ /1000 strokes)	Charge-air pressure (mmHg)	Timing device travel (mm)	Reduction of timing device travel (mm)
1250	49,3 - 51,3	540 - 560	(3,1)	0,2-1,0
1250	38,7 - 41,7	540 - 560	(2,3)	0,8-2,0

DKKC no. 104740-3762 15.4.1988 Date: (0)

Company: MITSUBISHI MD 120184 No:

Injection pump no. 104640-3432

(NP-VE4/10F2000RNP515)

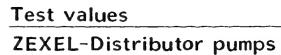
Injection pump no. 104640-				JF 2000KNP515)			NO:	MD 120184
Direction of rotation: rear		ide clockwi							
<u> Prestroke setting: - mr</u>			•	e holder comb	<u>ination:</u>	<u>1 688 901</u>	<u>000 Test</u>	pressure	line: 1 680 750 013
1. Setting val	ues		Speed	Setting val	ues		Charge - ai	r	Difference
			min-1				pressure -	bar (mmHg)	(cc)
1-1 Timing device travel			1250	T=3,5-3,9	(mm)			_	
1-2 Feed pump pressure			1250	4,5 - 5,1					
1-3 Full load delivery wi	thout	charge-							
air pressure			1250	45,3 - 46,3	(cc/1000	strokes)			3,0
Full load delivery wi	th char	rge-air			(00)				3,0
pressure					(cc/1000)	strokes)			
1-4 Low-idle speed regula	tion		375	6,5 - 9,5					3.0
1-5 Start			100	63,0 - 83,0			•		2,0
1-6 Maximum speed regulat	ion		2150	15,1 - 21,1					1: 0
1-7 Load-dependent start		iverv	1250	1		JUI ORCO,			4, 0
1-8			'230	T=0,4-0,8	(mm)				
2. Test values							 		
2-1 Timing device		N = min-1	500	750	1250	2000	1		
		m	0,6-1	,8 1,4 - 2,6	3, 3 - 4, 1	6, 2 - 7, 4			
2-2 Feed pump		N = min-1	600	1250	2000		3. D	mensions	
		kg/ci	$m^2 2, 9 - 3$,5 4,5 - 5,1	6,3 - 6,9				
2-3 Overflow rate		N = min-1					_		
		cc/10	s 48, 0-92	. 0			K	3,2-	3,4 mm
2-4 Delivery rates							KF		5,9 mm
Control lever position	Spe	ed Deliv	ery rate	Charge-air	pressure	Difference	e MS		1,3 mm
	min-	-1 (cc/1)	000 strokes) bar (mmHq)	•	(cc)	LDA		•
End stop	125		- 46, 8				Angle	of contro	llever
	60		- 46, 3				α		3,0 angle
	200	0 37, 2	- 41,2		I		A	10.5 - 1	
	215		- 23, 1				В		19,0 angle
	250		v 5,0		1		В		5.7 mm
Shut-off	37		0				Y	_	angle
Idle stop	37		- 10,0	1					mm
	60	0 below	v 3,0		-				
							-		

est values	
EXEL-Distributor pumps	

Cut-in voltage max. 8 V

Test voltage 12 - 14 V





C8



2-5

Magnet

(1) Stop the control lever at the appropriate spot in accordance with the following conditions.

Charge-air pressure:

•

mmHg

Pump speed:

1250

/min

Injection quantity:

 $35, 2 - 36, 2 \text{ cm}^3/1000 \text{ strokes}$

(2) When the control lever is in the position specified above (1), adjust the governor sleeve so that the timing device travel is as previously stipulated. (Page 1/2).

2. Checking load-dependent start of delivery

Stop the control lever at the appropriate spot in accordance with the following conditions, and check load-dependent start of delivery.

Pos	sition of control lever	Prescribed values		
Pump speed (1/min)	Injection quantity (cm ³ /1000 strokes)	Charge-air pressure (mmHg)	Timing device travel (mm)	Reduction of timing device travel (mm)
1250	34.7 - 36.7	-	(3.1)	0.2 - 1.0
1250	26.7 - 29.7	-	(2.3)	0.8 - 2.0

ZEXEL-Distributor pumps

Test values

Test oil: ISO 4113 od SAE J967d

ZEXEL - Test values

Distributor pumps

(NP-VE4/10F2150RNP567)

Engine: TD25

1/2 BOSCH no. 9 460 610 314 104740-9633 DKKC no.

15.4.1988 Date: NISSAN DIESEL Company:

No: 16700 44G04

Injection pump no. 104640-9633

Direction of rotation: rear end side clockwise

line: 1 680 750 017
Difference
(cc)
1
i
i
3, 0
3,0
2,0
2,0
1

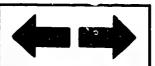
4. 1	<u>est values</u>						·
2–1	Timing device	Pulling electro- magnet	ON	1700	1700	OFF	2300
		N = min-1 MM		[6, 0-7, 0]	4,6-5,2		6.0-7.0
2-2	Feed pump	N = min-1	1000	1700	1000	1700	2150
		kg/cm ²	4,5-5,3	5, 9-6, 7	3,5-4,1	4, 9-5, 5	5, 8-6, 4
2-3	Overflow rate	N = min-1	1100	1100	(withou		
		cc/10s	43,0-87,0	60-130	0-ring	1)	
2-4	Delivery rates					·	

2-3 Overflow rate	N = min-1	1100 1100		
2-4 Delivery rates	cc/10s	43,0-87,0 60-130) 0-ring)	
Control lever position		Delivery rate (cc/1000 strokes)	Charge-air pressure	
End stop	1100 600 2150 2300 2500 2700	47,5 - 49,5 45,1 - 49,1 38,5 - 42,8 28,3 - 37,3 9,6 - 14,6 below 5,0	Dai (IIIIIIII)	(cc)
Shut-off	350	0		
Idle stop	350 450	4,5 - 8,5 below 3,0		
2-5 Magnet		ltage max. 8 V age 12 - 14 V		L

3. Di	mensions 	
K	3,2 - 3,4	mm
KF	5,7 - 5,9	mm
MS	0,9 - 1,1	mm
LDA		mm
Angle	of control le	
α	35,5 - 43,5	
ΥA	24, 3 - 28, 7	_
β	31,0 - 41,0	
В	9, 3 - 12, 9	•
Υ	-	angle
^	_	mm

Test values **C11**

ZEXEL-Distributor pumps



C12

Test values



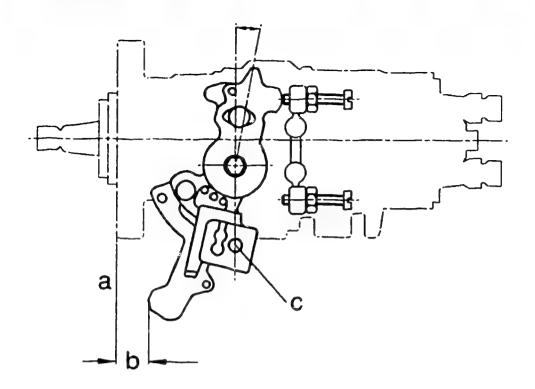


Fig. 5

104740-9633 2/2

a = flange facing

b = measurement "YA"

c = bore A

• POSITION FOR MEASURING CONTROL LEVER ANGLE

(1) Measure control lever angle $(\alpha, \beta, \Upsilon)$ at bore A.

Note:

 The pulling electromagnet is not defined as ON or OFF.
 All specifications here correspond to OFF.

Test values



Test oil: ISO 4113 od SAE J967d

ZEXEL - Test values

Distributor pumps Engine: 4JB1-A BOSCH no. 9 460 610 319

DKKC no. 104741-1272

Date: 15.4.1988 (0)

Company: ISUZU

No: 894426 8511

Injection pump no. 104641-1172

(NP-VE4/11F1800RNP419)

rection of rotation: rear end side clocks restroke setting: 0,43 - 0,47 mm		<u> </u>	000 Test pressure	line: 1 680 750 017
1. Setting values	Speed min-1	Setting values		Difference
1-1 Timing device travel	1550	1,7 - 2,1 (mm)		
1-2 Feed pump pressure	1550	5,1-5,5 (kg/cm ²)		ł .
1-3 Full load delivery without charge-				1
air pressure	1000	44,1 - 45,1 (cc/1000 strokes)		3, 5
Full load delivery with charge-air				1
pressure		(cc/1000 strokes)		
1-4 Low-idle speed regulation	390	7,0 - 11,0 (cc/1000 strokes		2,0
1-5 Start	100	75,0 - 115,0 (cc/1000 strokes		
1-6 Maximum speed regulation	2100	9,8 - 15,8 (cc/1000 strokes		3, 5
1-7 Load-dependent start of delivery				
1-8	1			

2. T	est values						
2-1	Timing device	Pulling electro- magnet N = min ⁻¹ MM	690 ^{ON} 890 0, 5	1400-1500 0.5	off 1,6 - 2,2	1900 5.3 - 6.2	
2-2	Feed pump	$N = min-1$ kq/cm^2	1000	1550 5,1 - 5,5	1850		
2-3	Overflow rate	N = min-1 cc/10s	1550 67, 0-111, 0				

	14 = 111111111111111111111111111111111	1 1330			
	cc/10	s 67,0-111,0			
2-4 Delivery rates				******	
Control lever position	Speed	Delivery rate	Charge-air	pressure	Difference
	min-1	(cc/1000 strokes)	bar (mmHg)		(cc)
End stop	1000	43,6 - 45,6			1307
•	500	41,8 - 48,8	1		
	700	34, 3 - 38, 3			
	1350	45,0 - 49,0			
	1700	44,4 - 49,4			
	1900	32, 5 - 39, 5 9, 3 - 16, 3	1		
	2100		1		
	2300	below 7,0			
Shut-off	390	0			
Idle stop	390	7,0 - 11,0			
	550	below 3,0			
2-5	Cut-in v	voltage max. 8 V	ļ		
	1 000-111 1	ortuge mux. ov			

Test voltage 12 - 14 V

3. Dime	3. Dimensions				
K KF MS	2,7 - 2,9 4,9 - 5,1 0,9 - 1,1	mm mm mm			
LDA		mm			
Angle of	of control le				
α	14,0 - 22,0	angle			
Α	2,5 - 7,6	mm			
β	30,0 - 40,0	angle			
В	8,7 - 12,6				
Υ	_	angle			
C		_mm			

Note:

The pulling electromagnet is not defined as ON or OFF. All specifications here correspond to OFF.

Test values

Magnet

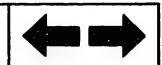
C14

ZEXEL-Distributor pumps



C15

Test values



Test oil: ISO 4113 od SAE J967d

ZEXEL - Test values

Distributor pumps Engine: 4JB1CDT 1/2 BOSCH no. 9 460 610 315 DKKC no. 104741-1742 Date: 15.4.1988 (0) Company: ISUZU

Injection pump no. 104641-1742

(NP-VE4/11F1900RNP578)

No: 894475 1614

restroke setting: - mm	Test-nozzi	e holder combination: 1 688 901	000 lest pressure	
1. Setting values	Speed	Setting values	Charge - air	Difference
	min-1		pressure - bar (mmHq)	(cc)
1-1 Timing device travel	1700	5,0 - 5,4 (mm)	590 - 610	
1-2 Feed pump pressure	1700	5,2 - 5,6 (kg/cm ²)	590 - 610	
1-3 Full load delivery without charge-		i o, o o, o (kg, cm)	330 0:0	
air pressure	1250	63,2 - 64,2 (cc/1000 strokes)	590 - 610	2 5
Full load delivery with charge-air		(cc/1000 strokes/	330 010	3, 5
pressure	900	50,9 - 51,9 (cc/1000 strokes)	340 - 360	1
I-4 Low-idle speed regulation	385	3 1 - 7 1 (CC/1000 STrokes)	340 - 360	4,5
		3,1 - 7,1 (cc/1000 strokes)	U	2,0
1-5 Start	100	60,0-100,0 (cc/1000 strokes)	0	1
l-6 Maximum speed regulation	2300	19,3 - 25,4 (cc/1000 strokes)	590 - 610	4,5
<pre>1-7 Load-dependent start of delivery</pre>		, , , , , , , , , , , , , , , , , , , ,		1, 3
1-8			Í	

2-1	Timing device	Pulling electro-	ON 500	OFF	1450	1700	1850
		magnet N = min ⁻¹ MM	over 0,5		2,1-2,9	4, 9-5, 5	
2-2	Feed pump	N = min-1	500	500	1450	1700	1850
-	0 63	kg/cm ²	4.0-6.0	over 0.8	4, 3-4, 9	5, 2-5, 6	5,6-6,2
2-3	Overflow rate	N = min-1		1700			
		cc/10s		73 - 150			
2_4	Delivery rates						

	cc/10	s 73 - 1	150	
2-4 Delivery rates				
Control lever position	Speed min-1	Delivery rate (cc/1000, strokes)	Charge-air pressure	Difference (cc)
End stop	1250 600 750 900 1800 2300 2500	62,7 - 64,7 33,1 - 41,1 38,7 - 42,7 50,4 - 52,4 54,6 - 61,6 18,8 - 25,8 below 5,0	590 - 610 90 - 110 170 - 180 340 - 360 590 - 610 590 - 610 590 - 610	
Shut-off	385	0	0	
Idle stop	385	3,1 - 7,1 below 3,0	0	
2-5 Magnet	Cut-in voltage max. 8 V Test voltage 12 - 14 V			

3. Dimensions					
K KF MS LDA Angle	2,7 - 2,9 5,7 - 5,9 0,8 - 1,0 4,4 - 4,6	mn mn			
α	14,0 - 22,0	angle			
_A	11,3 - 14,7	lian			
β	32,0 - 42,0	angle			
8	10,1 - 13,6	mm			
Υ	-	angle			
C	~	mm			

Test values

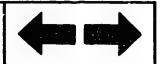
C16

ZEXEL-Distributor pumps



C17

Test values



- After setting the full-load at 1250/min, adjust the full-load from 900/min and the accelerator pressure from 340 360 mmHg, and then set the injection quantity with the accelerator compensator-adjustmen's screw.
- The pulling electromagnet is not defined as ON or OFF.
 All specifications here correspond to OFF.
- When checking the timing device travel and feed pump pressure, apply charge-air pressure of 590 - 610 mmHg to the charge-air pressure chamber.
- SETTING MICROSWITCH
 - 1. Position control lever so that the distance between the lever and the idle stop screw equals

 $6.0 \pm 0.4 \text{ mm}$

(control lever angle: 13° - 15°) and lock lever into place.

2. Choose the mounting position of the microswitch so that it is switched to OFF.

- SETTING THE V-FICD (set when W-KSB is loosened)
 - 1) Setting installation position of V-FICD.
 - 1. Lock control lever in the idle position.
 - 2. Set V-FICD bracket in such a way that the gap dimension "S" between the box rod and the pin pressed into the control lever equals 1+1 mm.
 - 2) Setting V-FICD travel
 - 1. Keep control lever in idle position.
 - 2. Apply vacuum of 400 mmHg to interior of vacuum control unit.
 - 3. Check whether the V-FICD consumer-shaft makes the whole stroke.

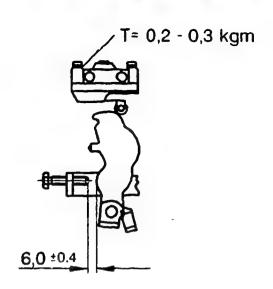
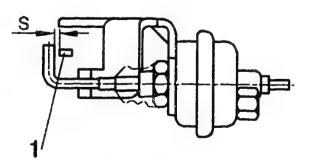


Fig. 6

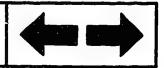
Fig. 7

1 = control lever



C18





Test oil: ISO 4113 od SAE J967d

ZEXEL - Test values

Distributor pumps Engine: #JB1CDT 1/2 BOSCH no. 9 460 610 316 DKKC no. 104741-1752 Date: 15.4.1988 (0) Company: ISUZU No: 894475 1624

Injection pump no. 104641-1742

(NP-VE4/11F1900RNP578)

Direction of rotation: rear end side clockwise

Prestroke setting: - mm
Te

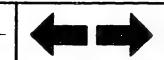
1. Setting values	Speed min-1		Charge - air pressure - bar (mmHq)	Difference
 1-1 Timing device travel 1-2 Feed pump pressure 1-3 Full load delivery without charge-air pressure Full load delivery with charge-air pressure 1-4 Low-idle speed regulation 	1700 1700 1250 900 385	5,0 - 5,4 (mm) 5,2 - 5,6 (kg/cm ²) 63,2 - 64,2 (cc/1000 strokes) 50,9 - 51,9 (cc/1000 strokes) 3,1 - 7,1 (cc/1000 strokes)	590 - 610 590 - 610 590 - 610 340 - 360	3, 5 4, 5 2, 0
1-5 Start 1-6 Maximum speed regulation 1-7 Load-dependent start of delivery 1-8	100 2300	60,0-100,0 (cc/1000 strokes) 19,3-25,4 (cc/1000 strokes)	0	4,5

۷. ا	est values						
2-1	Timing device	Pulling electro-	ON 500	OFF	1450	1700	1850
		N = min-1 mm	over 0,5		[2, 1-2, 9]	14,9-5.5	15, 8-6, 5
2-2	Feed pump	N = min-1	500	500	1450	1700	1850
		ka/cm ²	4.0-6.0	over 0.8	4, 3-4, 9	5.2-5.6	5,6-6,2
2-3	Overflow rate	N = min-1		1700			1010-012
		cc/10s		73 - 150			
2_1	Dolivory makes						

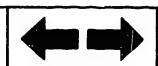
	cc/1	0s 73 - 1	50	
2-4 Delivery rates				
Control lever position	Speed min-1	Delivery rate (cc/1000 strokes)	Charge-air pressure	Difference (cc)
End stop	1250 600 750 900 1800 2300 2500	62,7 - 64,7 33,1 - 41,1 38,7 - 42,7 50,4 - 52,4 54,6 - 61,6 18,8 - 25,8 below 5,0	590 - 610 90 - 110 170 - 180 340 - 360 590 - 610 590 - 610 590 - 610	
Shut-off	385	0	0	
Idle stop	385	3,1 - 7,1 below 3,0	0	
2-5 Magnet	Cut-in Test vo	voltage max.8 V ltage 12 - 14 V		

3. Dir	nensions	
K KF MS LDA	2,7 - 2,9 5,7 - 5,9 0,8 - 1,0 4,4 - 4,6	mm mm
Angle	of control le	ver
Œ	14,0-22,0	angle
A	11,3 - 14,7	mm
β	32.0 - 42.0	angle
В	10,1 - 13,6	mm
Y	-	angle
C	-	mm

200	Test values
20	ZEXEL-Distributor pumps

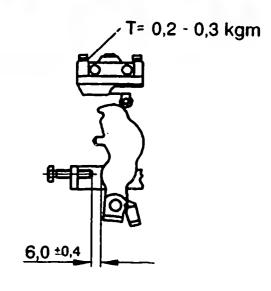






Note:

- After setting the full-load at 1250/min, adjust the full-load from 900/min and the accelerator pressure from 340 - 360 mmHg, and then set the injection quantity with the accelerator compensator-adjustment screw.
- The pulling electromagnet is not defined as ON or OFF.
 All specifications here correspond to OFF.
- When checking the timing device travel and feed pump pressure, apply charge-air pressure of 590 - 610 mmHg to the charge-air pressure chamber.



• SETTING MICROSWITCH

1. Position control lever so that the distance between the lever and the idle stop screw equals $6.0 \pm 0.4 \text{ mm}$

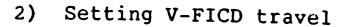
(control lever angle: 13° - 15°) and lock lever into place.

2. Choose the mounting position of the microswitch so that it is switched to OFF.

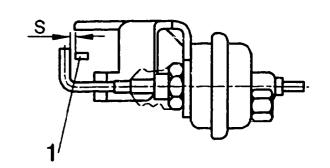


Fig. 8

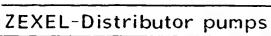
- SETTING THE V-FICD (set when W-KSB is loosened)
 - 1) Setting installation position of V-FICD.
 - 1. Lock control lever in the idle position.
 - 2. Set V-FICD bracket in such a way that the gap dimension "S" between the box rod and the pin pressed into the control lever equals 1+1 mm.

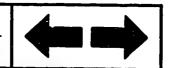


- 1. Keep control lever in idle position.
- 2. Apply vacuum of 400 mmHg to interior of vacuum control unit.
- 3. Check whether the V-FICD consumer-shaft makes the whole stroke.



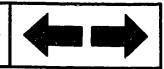
Test values







Test values



Test oil: ISO 4113 od SAE J967d

ZEXEL - Test values

Distributor pumps Engine: RF

1/4 BOSCH no. 9 460 610 304 104748-0135 DKKC no. 15.4.1988 Date: MAZDA Company:

RF01 13 800E

No:

Injection pump no. 104648-0135 (N Direction of rotation: rear end side clockwise

(NP-VE4/8F2325RNP205)

	roke setting: - mm	- T	- h-11	000 7 1	
			e holder combination: 1 688 901	<u> </u>	<u>line: 1 680 750 017</u>
1.	Setting values	Speed	Setting values	Charge - air	Difference
		min-1		pressure - bar (mmHq)	(cc)
1-1	Timing device travel	1375	4,5 - 4,9 (mm)		
1-2	Feed pump pressure	1 3 7 5	4,4 - 5,0 (kg/cm ²)		
	Full load delivery without charge-		(Kg/cm/)	ĺ	
ŀ	air pressure	1375	35,6 - 36,6 (cc/1000 strokes)		2,5
	Full load delivery with charge-air	1 373	33,0 30,0 (cc/1000 scrokes)		2,3
	pressure		(cc/1000 strokes)		
1-4	Low-idle speed regulation	350	6,0 - 10,0 (cc/1000 strokes)		2,0
	Start	100	over 42,0 (cc/1000 strokes)		1 -, 0
-	Maximum speed regulation	2500	19,1 - 23,1 (cc/1000 strokes)		
	Load-dependent start of delivery	1375	3, 9 - 4, 3 (mm)		
	Loud-dependent start of derivery	13/3	3,3 4,3 (mm)	1	
1-8					

<u> 2. Test values</u>					•
2-1 Timing device	N = min-1	1375	1750	2325	
	mm	4,4 - 5,0	6,1 - 7,3	7,2 - 8,4	
2-2 Feed pump	N = min-1 kg/cm ²	500 1,9 - 2,5	1375 4,4 - 5,0	2325 7,0 - 7,6	
2-3 Overflow rate	N = min-1 cc/10s	1375 46,3 - 90,3			
2-4 Delivery rates		· <u>····</u>			

Control lever position	Speed	Delivery rate	Charge-air pre	ssure Difference
	min-l	(cc/1000 strokes)	bar (mmHg)	(cc)
End stop	1375	35,1 - 37,1		
	500	28,0 - 32,0		
	2325	30, 2 - 34, 2		
	2500	18,1 - 24,1	1	
	2750	below 4,0	İ	
Shut-off	350	0		
Idle stop	350	6,0-10,0		
	450	below 4,0		
2-5	Cut-in	Voltage max. 8 V	<u> </u>	
Magnet	Test voltage 12 - 14 V			

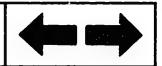
3. Dim	ensions	
K KF MS LDA	3,2 - 3,4 5,7 - 5,9 1,4 - 1,6	mm
<u>Angle</u>	<u>of control le</u>	
α	26,0 - 34,0	
<u>A</u>	4.0 - 9.5	
β	40,0 - 50,0	angle
<u>B</u>	12,5 - 15,8	mm
Υ	-	angle
C	-	mm

Test values ZEXEL-Distributor pumps









1. To set

(1) Stop the control lever at the appropriate spot in accordance with the following conditions.

Charge-air pressure:

mmHg

Pump speed:

1375

/min

D4

Injection quantity:

 $28, 2 \pm 1$ cm³/1000 strokes

(2) When the control lever is in the position specified above (1), adjust the governor sleeve so that the timing device travel is as previously stipulated. (Page 1 / 4).

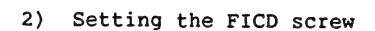
2. Checking load-dependent start of delivery

Stop the control lever at the appropriate spot in accordance with the following conditions, and check load-dependent start of delivery.

Position of control lever			Prescribed values	
Pump speed (1/min)	Injection quantity (cm ³ /1000 strokes)	Charge-air pressure (mmHg)	Timing device travel (mm)	Reduction of timing device travel (mm)
1375	28,2 <u>+</u> 1,5	-	4, 1 <u>+</u> 0, 3	-
1375	16,1 <u>+</u> 1,5	-	2,9 <u>+</u> 0,7	-

Test values

- Setting the M-KSB stop
 - 1. Fix M-KSB unit temporarily to pump casing.
 - 2. Crank drive shaft at least twice in the direction of rotation of the pump.
 - 3. Crank drive shaft slowly, and lock into position at the point where resistance is felt (roller in the bracket is now laying against the disc cam).
 - 4. Rotate KSB lever in direction of adjustment.
 - 5. Hold KSB lever at the position in which the knuckle bolts are just touching the head of the shaft of the roller bracket (roller bracket - advance angle "0").
 - 6. Set stop in such a way that the gap dimension between the KSB lever and the stop equals $0.5 + 2 \, \text{mm}$.
 - 7. After setting, tighten the fixing screw with the torque prescribed for M-KSB T = 0.6 - 0.9 kpm.



104748-0135 4/4

- 1. Turn KSB lever the other way until it touches the stop.
- 2. Insert guage block (feeler gauge) $4.8 \pm 0.1 \text{ mm}$

between control lever and idle stop screw (distance from idle position 7°).

3. Set FICD screw in such a way that the control lever and the FICD screw are touching.

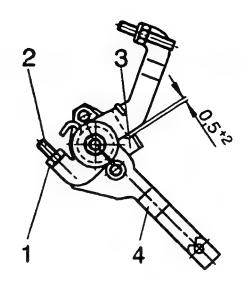


Fig. 10

1 = nut

2 = adjustment screw

3 = stop

4 = KSB lever

Fig. 11

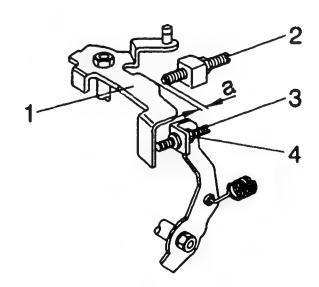
1 = control lever

2 = idle stop screw

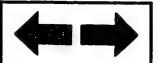
3 = FICD screw

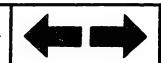
4 = nut

a = gauge block



D5





Distributor pumps Engine: RF

1/5 BOSCH no. 9 460 610 305 DKKC no. 104748-0145 15.4.1988 Date: (0) MAZDA Company:

RF02 13 800E

No:

Injection pump no. 104648-0145 (NP-VE4/8F2325RNP206)

Direction of	rotation:	rear	end	side	clockwise
--------------	-----------	------	-----	------	-----------

Prest	roke setting: - mm	Test-nozzl	e holder combination: 1 688 901	000 Test pressure line: 1 680 750 017
1.	Setting values	Speed	Setting values	Charge - air Difference
		min-1		pressure - bar (mmHq) (cc)
1-1	Timing device travel	1375	4,5 - 4,9 (mm)	
1-2	Feed pump pressure	1375	4,4 - 5,0 (kg/cm ²)	
1-3	Full load delivery without charge-		, , , , , , , , , , , , , , , , , , ,	
	air pressure	1375	35,6 - 36,6 (cc/1000 strokes)	2,5
	Full load delivery with charge-air			1
1	pressure		(cc/1000 strokes)	
1-4	Low-idle speed regulation	350	6,0 - 10,0 (cc/1000 strokes)	
1-5	Start	100	over 42,0 (cc/1000 strokes)	
1-6	Maximum speed regulation	2500	19,1 - 23,1 (cc/1000 strokes)	
1-7	Load-dependent start of delivery	1375	3,9 - 4,3 (mm)	
1-8			•]

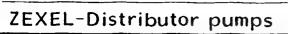
2.	l e	S	t	v a	1 u	e s

2-1 Timing device	N = min-1	1375	1750	2325	
	mm	4,4 - 5,0	6,1 - 7,3	7,2 - 8,4	
2-2 Feed pump	N = min-1	500	1375	2325	
	kg/cm ²	1,9 - 2,5	4,4 - 5,0	7,0 - 7,6	
2-3 Overflow rate	N = min-1	1375			
	cc/10s	46, 3 - 90, 3	1		

Control lever position	Speed min-l	Delivery rate (cc/1000 strokes)	Charge-air	pressure	
End stop	1375 500	35,1 - 37,1 28,0 - 32,0	Dai (mining)		(cc)
	2325 2500 2750	30, 2 - 34, 2 18, 1 - 24, 1 below 4, 0			
Shut-off	350	0			
Idle stop	350 450	6, 0 - 10, 0 below 4, 0			
2-5 Magnet	Cut-in Test vo	voltage max. 8 V ltage 12 - 14 V			

3. Dime	ensions	
K KF MS	3,2 - 3,4 5,7 - 5,9 1,4 - 1,6	mm mm mm
LDA	-	
Angle o	of control le	ver
α	26,0 - 34,0	angle
_A	4.0 - 9.5	<u>mm</u>
β	40,0 - 50,0	angle
В	12.5 - 15.8	mm
Υ	-	angle
C	-	mm
1		

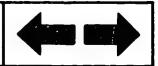
Test values





D8

Test values



1. To set

(1) Stop the control lever at the appropriate spot in accordance with the following conditions.

Charge-air pressure:

mmHg

/min

Pump speed:

1375

Injection quantity:

 $28,2 \pm 1$ cm³/1000 strokes

(2) When the control lever is in the position specified above (1), adjust the governor sleeve so that the timing device travel is as previously stipulated. (Page 1/5)

2. Checking load-dependent start of delivery

Stop the control lever at the appropriate spot in accordance with the following conditions, and check load-dependent start of delivery.

Position of control lever			Prescribed values		
Pump speed (1/min)	Injection quantity (cm ³ /1000 strokes)	Charge-air pressure (mmHg)	Timing device travel (mm)	Reduction of timing device travel (mm)	
1375	28, 2 <u>+</u> 1, 5	-	4, 1 + 0, 3	-	
1375	16,1 <u>+</u> 1,5	-	2,9 ± 0,7	-	

Test values

- 1) Setting the M-KSB stop
 - 1. Fix M-KSB unit temporarily to pump casing.
 - 2. Crank drive shaft at least twice in the direction of rotation of the pump.
 - 3. Crank drive shaft slowly, and lock into position at the point where resistance is felt (roller in the bracket is now laying against the disc cam).
 - 4. Rotate KSB lever in direction of adjustment.
 - 5. Hold KSB lever at the position in which the knuckle bolts are just touching the head of the shaft of the roller bracket (roller bracket advance angle "0").
 - 6. Set stop in such a way that the gap dimension between the KSB lever and the stop equals

 0.5 + 2 mm.
 - 7. After setting, tighten the fixing screw with the torque prescribed for M-KSB T = 0.6 0.9 kpm.

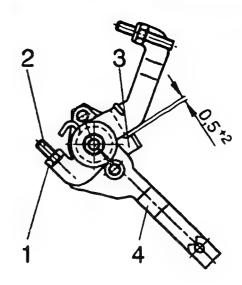


Fig. 12

1 = nut

2 = adjustment screw

3 = stop

4 = KSB lever



- 1. Turn KSB lever the other way until it touches the stop.
- 2. Insert gauge block (feeler gauge)

$$4.8 \pm 0.1 \, \text{mm}$$

between control lever and idle stop screw (distance from idle position 7°).

3. Set FICD screw so that the control lever and the FICD screw are touching.



1. Position control lever so that the distance between the lever and the idle stop screw equals

$$8.5 \pm 1 \text{ mm}$$

(control lever angle: 12.5°) and lock lever into place.

2. Set adjustment screw so that the microswitch is switched to ON.

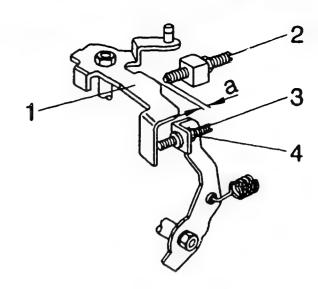


Fig. 13

1 = control lever

2 = idle stop screw

3 = FICD screw

4 = nut

a = gauge block

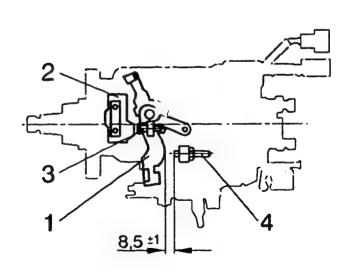
Fig. 14

1 = control lever

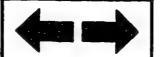
2 = microswitch

3 = adjustment screw

4 = idle stop screw

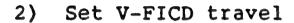


D13



- 1) Set installation location of V-FICD
 - 1. Stop control lever in the idle position.
 - 2. Set vacuum unit support so that the gap dimension between control lever roller and support bracket equals

$$2 \pm 1$$
 mm.



- 1. Move V-FICD across entire operating travel distance.
- 2. Set the gap dimension between the control lever and the idle stop screw on the adjustment screw at

$$3.4 \pm 1$$
 mm.

(Control lever angle: 5°)



Set bracket in such a way that gap dimension between the control lever and the FICD bracket equals more than 3 mm.

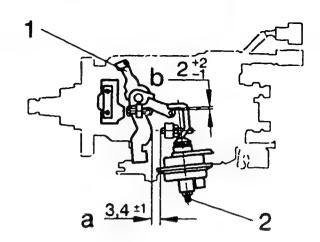


Fig. 15

l = control lever

2 = adjustment screw

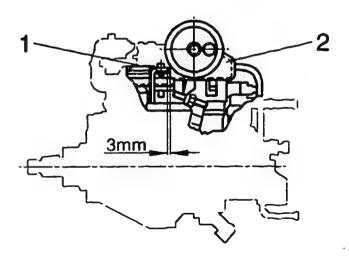
a = from idle position

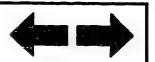
b = gap dimension inside

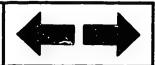
Fig. 16

1 = control lever

2 = FICD bracket







|Test oil: ISO 4113 od SAE J967d

ZEXEL - Test values

Distributor pumps

Engine: R2

1/4 BOSCH no. 9 460 610 306 DKKC no. 104748-0154 Date: 15.4.1988 (0) Company: MAZDA No: R201 13 800D

Injection pump no. 104648-0154 Direction of rotation: rear end side clockwise

(NP-VE4/8F2125RNP207)

Prestroke setting: - mm Test-nozzle holder combination: 1 688 901 000 Test pressure line: 1 680 750 017

1. Setting values	Speed min-1	Setting values	Charge - air pressure - bar (mmHq)	Difference (cc)
1-1 Timing device travel1-2 Feed pump pressure1-3 Full load delivery without charge-	1250 1250	3,3 - 3,7 (mm) 4,9 - 5,5 (kg/cm ²)		
air pressure Full load delivery with charge-air	1500	38,2 - 39,2 (cc/1000 strokes		2,5
pressure Low-idle speed regulation Start Maximum speed regulation Load-dependent start of delivery 1-8	350 100 2400 1250	(cc/1000 strokes 6,0 - 10,0 (cc/1000 strokes over 42,0 (cc/1000 strokes 11,1 - 15,1 (cc/1000 strokes 2,7 + 0,2 (mm)		2,0

2. Test values 2-1 Timing device $N = \min_{n=1}^{\infty}$ 1250 1500 2125 3, 2 - 3, 8 4, 1 - 5, 3 7, 0 - 8, 2 mm 2-2 Feed pump N = min-1500 1250 2125 kg/cm² 2,7-3,34,9-5,5 7,3-7,9 2-3 Overflow rate $N = \min_{n=1}^{\infty}$ 1250 cc/10e 49 7 - 93 7

		$\frac{1}{100}$	3, /		
2-4 Delivery rates					
Control lever position	Speed min-1	Delivery rate (cc/1000 strokes)	Charge-air	pressure	Difference (cc)
End stop	1500 500 2125 2400 2550	37,7 - 39,7 30,7 - 34,7 32,0 - 36,0 10,1 - 16,1 below 4,0	Sur Ymmrgy		
Shut-off	350	0			
Idle stop	350	6,0 - 10,0			
2-5	Cut-in	voltage max. 8 V			

Test voltage 12 - 14 V

3. Dim	ensions !	
K KF MS LDA	3,2 - 3,4 5,7 - 5,9 1,4 - 1,6	mm mm
_	of control le	ver
a A	28, 0 - 32, 0 5, 4 - 8, 2	angie mm
β	40,0 - 50,0 12,5 - 15,8	_
Y B	12,3 - 13,8	mm angle
<u>C</u>	-	mm

Test values

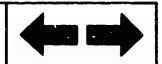
Magnet

ZEXEL-Distributor pumps



D18

Test values



1. To set

(1) Stop the control lever at the appropriate spot in accordance with the following conditions.

Charge-air pressure:

mmHq

Pump speed:

1250

/min

Injection quantity:

 $28,2 \pm 1 \text{ cm}^3/1000 \text{ strokes}$

(2) When the control lever is in the position specified above (1), adjust the governor sleeve so that the timing device travel is as previously stipulated. (Page 1/4).

2. Checking load-dependent start of delivery

Stop the control lever at the appropriate spot in accordance with the following conditions, and check load-dependent start of delivery.

Position of control lever			Prescribed values		
Pump speed (1/min)	Injection quantity (cm ³ /1000 strokes)	Charge-air pressure (mmHg)	Timing device travel (mm)	Reduction of timing device travel (mm)	
1250	28,2 + 1,5	-	2,7 ± 0,3	-	
1250	18,1 + 1,5	-	1,5 + 0,7	-	

D 20

Test values

- 1) Setting the M-KSB stop
 - 1. Fix M-KSB unit temporarily to pump casing.
 - 2. Crank drive shaft at least twice in the direction of rotation of the pump.
 - 3. Crank drive shaft slowly, and lock into position at the point where resistance is felt (roller in the bracket is now laying against the disc cam).
 - 4. Rotate KSB lever in direction of adjustment.
 - 5. Hold KSB lever at the position in which the knuckle bolts are just touching the head of the shaft of the roller bracket (roller bracket advance angle "0").
 - 6. Set stop in such a way that the gap dimension between the KSB lever and the stop equals 0.5 + 2 mm.
 - 7. After setting, tighten the fixing screw with the torque prescribed for M-KSB

T = 0.6 - 0.9 kpm.

104748-0154 4/4

- 2) Setting the FICD screw
 - 1. Turn KSB lever the other way until it touches the stop.
 - 2. Insert guage block (feeler gauge)

 $4.8 \pm 1 \text{ mm}$ between control lever and idle stop screw (distance from idle

position 7°).

3. Set FICD screw in such a way that the control lever and the FICD screw are touching.

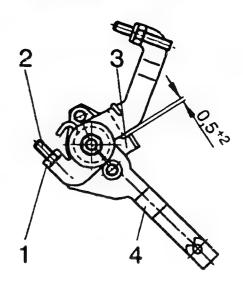


Fig. 17 1 = nut

2 = adjustment screw

3 = stop

4 = KSB lever

Fig. 18

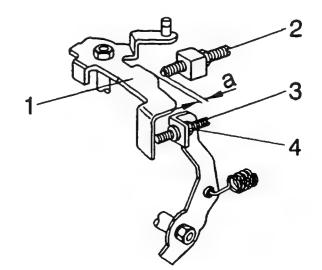
1 = control lever

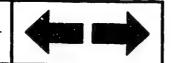
2 = idle stop screw

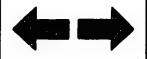
3 = FICD screw

4 = nut

a = gauge block







ZEXEL - Test values

Distributor pumps

Engine: R2

1/6 <u>BOSCH no. 9 460 610 307</u> <u>DKKC no. 104748-0164</u> <u>Date: 15.4.1988 (0)</u>

Company: MAZDA

No: R202 13 800D

Injection pump no. 104648-0164 (NP-VE4/8F2125RNP208)
Direction of rotation: rear end side clockwise

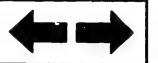
Prestroke setting: - mm		<u>e holder comb</u>	<u>ination: 1</u>	688 901	000 Test pressur	e line: 1 680 750 017
1. Setting values	Speed	Setting val	ues		Charge - air	Difference
	min-1				pressure - bar (mmH	q) (cc)
1-1 Timing device travel	1250	3, 3 - 3, 7	(mm)			
1-2 Feed pump pressure	1250	4,9 - 5,5				
1-3 Full load delivery without charge	-					
air pressure	1500	38, 2 - 39, 2	(cc/1000 s	strokes)		2,5
Full load delivery with charge-ai	r					2,3
pressure			(cc/1000 s	strokes)		i
1-4 Low-idle speed regulation	350	6,0 - 10,0				2,0
1-5 Start	100	over 42,0				2,0
1-6 Maximum speed regulation	2400	11,1 - 15,1				
1-7 Load-dependent start of delivery	1250	2,7+0,2	(mm)	, , , , , , , , , , , , , , , , , , , ,	1	
1-8			······			}

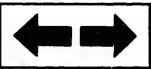
2-1 Timing device	N = min-1	1250 1500 2125
	mm	3, 2-3, 8 4, 1-5, 3 7, 0-8, 2
2-2 Feed pump	N = min-1	500 1250 1500 2125
	kg/cm ²	2,7-3,3 4,9-5,5 5,6-6,2 7,3-7,9
2-3 Overflow rate	N = min-1	1250
	cc/10s	49,7 - 93,7
2-A Dolivory rates		

2-4 Delivery rates			
Control lever position	Speed min-1	Delivery rate Charles	arge-air pressure Difference (mmHq) (cc)
End stop	1500 500 2125 2400 2550	37,7 - 39,7 30,7 - 34,7 32,0 - 36,0 10,1 - 16,1 below 4,0	· · · · · · · · · · · · · · · · · · ·
Shut-off	350	0	
Idle stop	350	6,0 - 10,0	
2-5 Magnet	Cut-in Test vo	voltage max. 8 V ltage 12 - 14 V	

3. Dir	nensions 	·
K	3, 2 - 3, 4	mm
KF	5,7 - 5,9	mm
MS	1,4 - 1,6	
LDA	_	mm
	of control le	
α	28,0 - 32,0	
A	5,4 - 8,2	
β	40,0 - 50,0	angle
В	12,5 - 15,8	mm
Y	-	angle
Č	_	mm

E1





1. To set

(1) Stop the control lever at the appropriate spot in accordance with the following conditions.

Charge-air pressure:

mmHg

/min

Pump speed:

1250

Injection quantity:

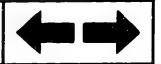
 $28,2 \pm 1 \text{ cm}^3/1000 \text{ strokes}$

(2) When the control lever is in the position specified above (1), adjust the governor sleeve so that the timing device travel is as previously stipulated.

2. Checking load-dependent start of delivery

Stop the control lever at the appropriate spot in accordance with the following conditions, and check load-dependent start of delivery.

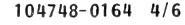
Pos	sition of control lever	Prescribed values		
Pump speed (1/min)	Injection quantity (cm ³ /1000 strokes)	Charge-air pressure (mmHg)	Timing device travel (mm)	Reduction of timing device travel (mm)
1250	28,2 <u>+</u> 1,5	-	2,7 <u>+</u> 0,3	-
1250	18,1 + 1,5	_	1,5 <u>+</u> 0,7	-



Test values

- MOUNTING AND SETTING M-KSB
- 1) Setting the M-KSB stop
 - 1. Fix M-KSB unit temporarily to pump casing.
 - 2. Crank drive shaft at least twice in the direction of rotation of the pump.
 - 3. Crank drive shaft slowly, and lock into position at the point where resistance is felt (roller in the bracket is now laying against the disc cam).
 - 4. Rotate KSB lever in direction of adjustment.
 - 5. Hold KSB lever at the position in which the knuckle bolts are just touching the head of the shaft of the roller bracket (roller bracket advance angle "0").
 - 6. Set stop in such a way that the gap dimension between the KSB lever and the stop equals 0.5 + 2 mm.
 - 7. After setting, tighten the fixing screw with the torque prescribed for M-KSB





- 2) Setting the FICD screw
 - 1. Turn KSB lever the other way until it touches the stop.
 - 2. Insert guage block (feeler gauge)

$$4.8 \pm 1 \text{ mm}$$

between control lever and idle stop screw (distance from idle position 7°).

3. Set FICD screw in such a way that the control lever and the FICD screw are touching.

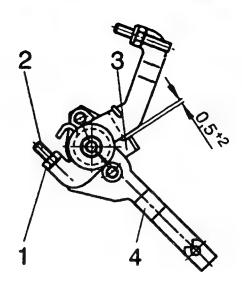


Fig. 19

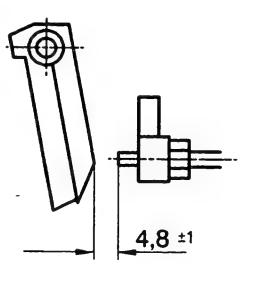
1 = nut

2 = adjustment screw

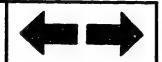
3 = stop

4 = KSB lever

Fig. 20



E5









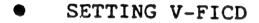
SETTING MICROSWITCH

1. Position control lever so that the distance between the lever and the idle stop screw equals

$$8.5 \pm 1 \text{ mm}$$

(control lever angle: 12.5°) and lock lever into place.

2. Set adjustment screw so that the microswitch is switched to ON.



- 1) Set installation location of V-FICD
 - 1. Stop control lever in the idle position.
 - 2. Set vacuum unit support so that the gap dimension between control lever roller and support bracket equals

- 2) Set V-FICD travel
 - 1. Move V-FICD across entire operating travel distance.
 - 2. Set the gap dimension between the control lever and the idle stop screw on the adjustment screw at

$$3.4 \pm 1$$
 mm.

(Control lever angle: 5°)

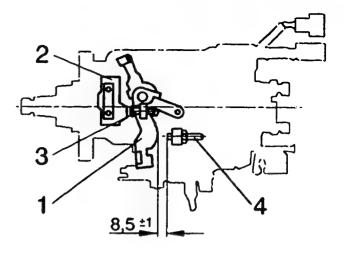


Fig. 21

1 = control lever

2 = microswitch

3 = adjustment screw

4 = idle-stop screw

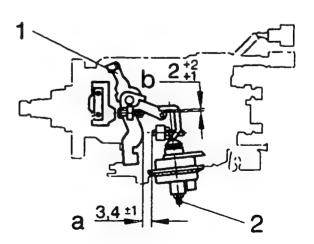
Fig. 22

1 = control lever

2 = adjustment screw

a = from idle position

b = gap dimension inside





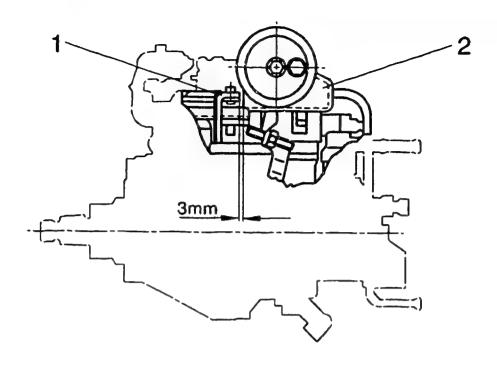


Fig. 23

104748-0164 6/6

1 = control lever 2 = FICD bracket

• SETTING INSTALLATION LOCATION OF FICD

Set bracket in such a way that gap dimension between the control lever and the FICD bracket equals more than 3 mm.



Test oil: ISO 4113 od SAE J967d

ZEXEL - Test values

Distributor pumps Engine: R2

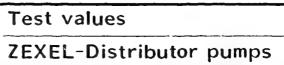
1/4 BOSCH no. 9 460 610 308 DKKC no. 104748-0183 15.4.1988 Date: MAZDA Company:

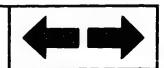
Injustice numb no 104640-0102

Injection pump no. 104648-0193		(NP-VE4/8F	2125RNP247)				No:	R209 13 800D
Direction of rotation: rear end s			,				110.	N 2 U 3 1 0 U U U
Prestroke setting: - mm		· -	e holder comb	ination:	1 688 901	000 Test	pressure	line: 1 680 750 017
1. Setting values		Speed	Setting val	ues		Charge - ai		Difference
		min-1				pressure -		
1-1 Timing device travel		1250	3,3 - 3,7					
1-2 Feed pump pressure	change	1250	4,9 - 5,5	(kg/cm^2))			
1-3 Full load delivery without air pressure	charge-	1500	20 2 20 2	/ n n / 1 0 0 6				
Full load delivery with cha	rge_air	1500	38, 2 - 39, 2	(CC)1000) strokes)			2,5
pressure	gc - u i i	•		(cc/1000) strokes)			
1-4 Low-idle speed regulation		350	6,0 - 10,0		strokes)			2.0
1-5 Start		100	over 42,0			•		2,0
1-6 Maximum speed regulation	_	2400	11,1 - 15,1					
1-7 Load-dependent start of del	ivery	1250	2,7 + 0,2					
1-8 2. Test values								
2-1 Timing device	N = min-1	1 1250	1500	21	7.5			
z=1 11mmg device	m m	1	3,8 4,1 - 5,					
2-2 Feed pump	N = min-1	500				3 Di	mensions_	
	kg/ci					-3:-3:	1	
2-3 Overflow rate	N = min-1					-		
2 A Dalinama askas	cc/10	$\frac{149,7-9}{1}$	3, 7			_ K		3,4 mm
2-4 Delivery rates	ad IDalin		101			KF	5,7-	-
Control lever position Spe	=1 (cc/)	ery rate	Charge-air	•			1,4-	
End stop 150	0 37 7	- 39, 7	bar (mmHg)		(cc)	LDA		mm 1 lavan
50		- 34,7					of contro	2,0 angle
212		- 36,0				A A		8,2 mm
240		- 16,1				β	40,0 - 5	0,0 angle
255		N 4,0				B	12,5 - 1	5,8 mm
Shut-off 35		0				Y	-	angle
Idle stop 35	υ 6,0	- 10,0				<u>C</u>		mm
			 			-		
2-5 Cut	-in voltage	max. 8 V	-			-		
Magnet Tes	t voltage 1:	2 - 14 V						

E11

Test values	
ZEXEL-Distributor pumps	





1. To set

(1) Stop the control lever at the appropriate spot in accordance with the following conditions.

Charge-air pressure:

Pump speed:

1250

/min

mmHq

Injection quantity:

 $28, 2 \pm 1 \text{ cm}^3/1000 \text{ strokes}$

(2) When the control lever is in the position specified above (1), adjust the governor sleeve so that the timing device travel is as previously stipulated. (Page 1 / 4).

2. Checking load-dependent start of delivery

Stop the control lever at the appropriate spot in accordance with the following conditions, and check load-dependent start of delivery.

Posi	tion of control lever	Prescribed values		
Pump speed (1/min)	Injection quantity (cm ³ /1000 strokes)	Charge-air pressure (mmHg)	Timing device travel (mm)	Reduction of timing device travel (mm)
1250	28, 2 <u>+</u> 1, 5	-	2,7 <u>+</u> 0,3	-
1250	18,1 <u>+</u> 1,5	_	1,5 + 0,7	-

- 1) Setting the M-KSB stop
 - 1. Fix M-KSB unit temporarily to pump casing.
 - 2. Crank drive shaft at least twice in the direction of rotation of the pump.
 - 3. Crank drive shaft slowly, and lock into position at the point where resistance is felt (roller in the bracket is now laying against the disc cam).
 - 4. Rotate KSB lever in direction of adjustment.
 - 5. Hold KSB lever at the position in which the knuckle bolts are just touching the head of the shaft of the roller bracket (roller bracket advance angle "0").
 - 6. Set stop in such a way that the gap dimension between the KSB lever and the stop equals 0.5 + 2 mm.
 - 7. After setting, tighten the fixing screw with the torque prescribed for M-KSB T = 0.6 0.9 kpm.
- 2) Setting the FICD screw
 1. Turn KSB lever the other way until it touches the stop.
 - 2. Insert guage block (feeler gauge)

 $4.8 + 1 \, \text{mm}$

between control lever and idle stop screw (distance from idle position 7°).

3. Set FICD screw in such a way that the control lever and the FICD screw are touching.

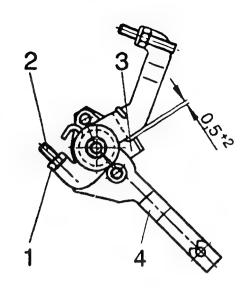


Fig. 24 1 = nut 2 = adjustmen

2 = adjustment screw
3 = stop

3 = stop

4 = KSB lever

Fig. 25

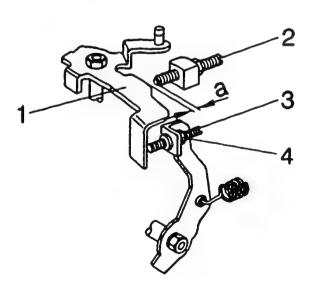
1 = control lever

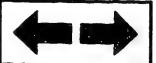
2 = idle stop screw

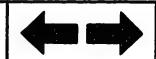
3 = FICD screw

4 = nut

a = gauge block







Test oil: ISO 4113 od SAE 3967d

ZEXEL - Test values

Distributor pumps Engine: RF

1/4 BOSCH no. 9 460 610 311 DKKC no. 104748-0344 15.4.1988 MAZDA Date: Company:

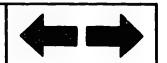
Trestrok setting Trestrok se	Injection pump no. 104648-0	1354	/ NI	D_VE#/of	222 CD N D EAAN					Compai	
Test=nozz holder combination: 1 688 901 000 Test pressure 1 fine: 1 680 750 017	Direction of rotation: rear	and cid	la clackida	F-VE4/8F	2323KNP580)					No:	RF79 13 800B
1-1	Prestroke setting.	ena 210									
Timing device travel		** • •		est-nozzi	e holder comb	<u>ination:</u>	<u>1 688 901</u>				
Timing device travel	1. Secting val	ues		*	Setting val	ues		Charg	ge - air		Difference
1-2 Feed pump pressure 1375	1 1 Timing doubles towns							press	sure - ba	ir (mmHg)	(cc)
1-3 Full load delivery without charge air pressure Full load delivery with charge-air pressure 1375 35, 4 - 36, 4 (cc/1000 strokes) 2, 5 -4 Low-idle speed regulation 360 9, 0 - 11, 0 (cc/1000 strokes) 2, 0 -5 Start 100 over 42, 0 (cc/1000 strokes) 1-6 Maximum speed regulation 2600 10, 8 - 14, 8 (cc/1000 strokes) 1-7 Load-dependent start of delivery 1375 33, 4 - 3, 8 (mm) 3, 9 - 4, 5 6, 1-7, 3 7, 2-8, 4 -8 2-1 Timing device N = min-1 600 1375 1800 2325 84/(mm) 2, 2-2, 8 4, 4-5, 0 5, 6-6, 2 6, 9-7, 5	i-i liming device travel			1375	4,0 - 4,4	(mm)					
1-3 Full load delivery without charge- air pressure full load delivery with charge-air pressure full load delivery with charge-air pressure 1-4 Low-idle speed regulation 360 9,0 - 11,0 (cc/1000 strokes) 2,0 -5 Start 100 over 42,0 (cc/1000 strokes) 10,8 - 14,8 (cc/1000 strokes) 10,8 - 14,8 (cc/1000 strokes) 10,8 - 14,8 (cc/1000 strokes) 1-5	1-2 Feed pump pressure			1375	4,4 - 5,0	(kg/cm ²					
Full load delivery with charge-air pressure	1-3 Full load delivery wi	thout ch	narge-			•					
Full load delivery with charge-air pressure Low-idle speed regulation 360 9,0 - 11,0 (cc/1000 strokes) 0				1375	35, 4 - 36, 4	(cc/1000) strokes)	1			2.5
Pressure	Full load delivery wi	th charg	ge-air			(00)					-, 3
Low-lot Speed regulation 360 9,0 - 11,0 (cc/1000 strokes) 0 0 0 0 0 0 0 0 0		_				(cc/1000) strokes)				
1-5	1-4 Low-idle speed regula	tion		360	9.0 - 11.0	(cc/1000) strokes)				2.0
1-6	1-5 Start				over 42 0	(cc/1000) strokes)				2,0
1-8		ion	į		10 8 - 14 8	(00/1000	strokes)	ł			
1-8	1-7 Load-dependent start	of deliv			3 11 - 3 0	(6671000	strokes)	İ			
2. Test values 2-1 Timing device	1-8	0. 06114	er y	13/3	3,4 - 3,6	(111111)		ļ			
2-1 Timing device		·						<u> </u>			
2-2 Feed pump N = min-1		1	N - min 1	1	1275 16	200	225				
N = min-1	2 1 1 ming device							1			
Speed Delivery rates Control lever position Speed Delivery rate Carge-air pressure Difference Carge-air pressure Carge-air pressure Difference Carge-air pressure Carge-air pressure Carge-air pressure Carge-air pressure Carge-air pressure Carge-ai	2-2 Food nump										
N = min-1 1375 46,3-90,3 K 3,2 - 3,4 mm KF 5,7 - 5,9 mm KF 5,7 - 5,9 mm KF 5,7 - 5,9 mm KF 5,7 - 5,9 mm KF 5,7 - 5,9 mm KF 5,7 - 5,9 mm KF 5,7 - 5,9 mm KF 5,7 - 5,9 mm KF 5,7 - 5,9 mm MS 1,4 - 1,6 mm LDA - mm LDA	2-2 reed pullip	1						1 1	_3. Dime	nsions	
Control lever position Speed min-1 Delivery rate (cc/1000 strokes)	2 2 Overflow rate			2, 2-2, 8	4, 4-5, 0 5, 0	6-6, 2 - 6, 9	9-7,5	_			
2-4 Delivery rates Control lever position Speed min-1 (cc/1000 strokes) bar (mmHg) Charge-air pressure Difference (cc)	2-3 Overflow rate			İ				ı °l			
Speed min-1 Ccc/1000 strokes bar (mmHg) Ccc	2.4.0.1:		<u>cc/10s</u>		46, 3-90, 3			_	K	3, 2 - 3	3.4 mm
Control lever position Speed min-1 (cc/1000 strokes) Delivery rate (cc/1000 strokes) Delivery rat	2-4 Delivery rates					_		~	KF		
Shut-off 360	Control lever position	Speed	Delivery	rate	Charge-air	pressure	Difference				Ŧ
1375 34, 9 - 36, 9		min-1	(cc/1000	strokes)	bar (mmHa)			Ĭ		-, -	
Cut-in voltage max. 8 V	End stop	1375	34,9 -	36.9			100/	-		f control	
2325 30,2 - 34,2 2600 9,8 - 15,8 2700 below 6,0		600									the same of the sa
2600 9,8 - 15,8 6 40,0 - 50,0 angle B 12,7 - 16,0 mm Shut-off 360 0 C - mm Idle stop 360 8,0 - 12,0 Cut-in voltage max. 8 V		1		-	1	ł		1 1			
2700 below 6, 0 B 12, 7 - 16, 0 mm Y - angle C - mm								1 1			
Shut-off 360 0				•	1	1		1 1			
Shut-off 360 0 Idle stop 360 8,0-12,0 2-5 Cut-in voltage max. 8 V		2,00	Delow	0, 0		i		1 1	R	12, 7 - 10	
Idle stop 360 8,0 - 12,0 2-5 Cut-in voltage max. 8 V						l		1 1	•	-	
2-5 Cut-in voltage max. 8 V	Shut-off	360	0					-	<u>C</u>		mm
2-5 Cut-in voltage max. 8 V	Idle stop	360	8.0 -	12 0	 			-			
out in voicage max. o v	•		3,0	, 0		1		1 1			
out in voicage max. o v					 			-			
Magnet	2-5	Cut-i	n voltage ma	x 8 V				-			
Magnet Test voltage 12 - 14 V	Magnet	Test	voltane 12	- 14 V				1 1			

Test values ZEXEL-Distributor pumps



E17

Test values



1. To set

(1) Stop the control lever at the appropriate spot in accordance with the following conditions.

Charge-air pressure:

mmHg

/min

Pump speed:

1375

Injection quantity:

 $28, 2 \pm 1$ cm³/1000 strokes

(2) When the control lever is in the position specified above (1), adjust the governor sleeve so that the timing device travel is as previously stipulated. (Page 1 / 4).

2. Checking load-dependent start of delivery

Stop the control lever at the appropriate spot in accordance with the following conditions, and check load-dependent start of delivery.

Pos	sition of control lever	Prescribed values		
Pump speed (1/min)	Injection quantity (cm ³ /1000 strokes)	Charge-air pressure (mmHg)	Timing device travel (mm)	Reduction of timing device travel (mm)
1375	28, 2 <u>+</u> 1, 5	-	3, 6 <u>+</u> 0, 3	-
1375	16,1 <u>+</u> 1,5	-	2,4 <u>+</u> 0,7	~

- 1. Clamp control lever in idle position.
- Set rod (1) in such a way that the dimension for the pin equals 5.8 0.2 mm (between the side connecting lever and the angle bracket).
 After this, tighten lock nut.

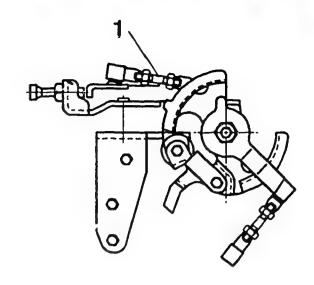
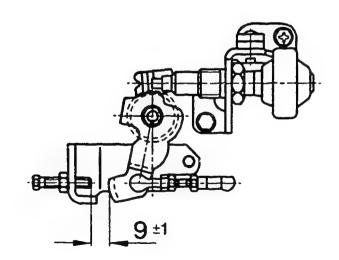


Fig. 26

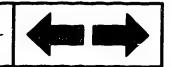
• SETTING DAMPER

- Insert gauge block (feeler gauge) 9 ± 1 mm between control lever and idle screw. (Control lever angle: 13°)
- 2. Set damper-adjustment screw in such a way that the damper-adjustment screw and the tappet are touching. Tighten the nut securely.

Fig. 27







- 1. Setting the timing device stroke
 - (1) Calculate the timing device stroke (fig. 29) according to the ambient temperature during adjustment.
 - (2) Set stroke with the timing device stroke-adjustment screw (1), so that it agrees with the calculation (see below).
- 2. Setting W raised idling
 - (1) Adjust the adjustment screw (2) until there is a distance of 12.3 ± 0.5 mm between the control lever and the idle stop screw.
- 3. Setting the control lever angle
 - (1) Calculate the control lever angle (L dimension) as shown in fig. 29, according to the air temperature during adjustment.
 - (2) Adjust the control lever angle (2 dimension) with adjustment screw (3).

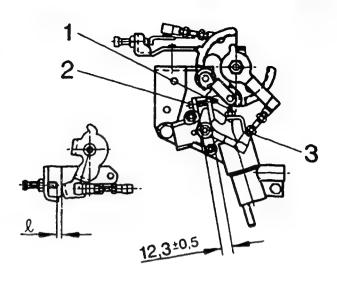


Fig. 28

Fig. 29

a = air temperature (°C)

b = timing device travel (TA) mm

c = gap dimension of control
lever/idle-stop screw (1)

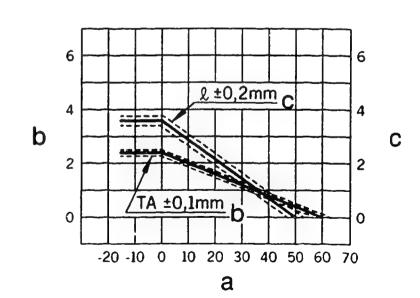
Calculation formula (Fig. 29)

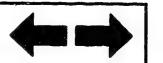
Timing device travel:

$$TA = -0.04 t + 2.4 (t \ge 0°C)$$

Control lever angle:

$$\ell = -0.072 t + 3.6 (t \ge 0°C)$$





ZEXEL - Test values

Distributor pumps Engine: RFX

1/4 BOSCH no. 9 460 610 309 104749-0344 DKKC no. 15.4.1988 Date:

MAZDA Company: RF71 13 800C No:

(NP-VE4/9F2150RNP556)

<u>Injection</u>	pur	np no.	104	4649-0	0354		(1	NF
Direction	of	rotat	ion:	rear	end	side	clockwis	e

		000 Test pressure	line: 1 680 750 017
Speed	Setting values	Charge - air	Difference
min-1		pressure - bar (mmHq)	(cc)
1500	T = 4, 4 - 4, 8 (mm)	640 - 660	
1500	$5.2 - 5.8 \text{ (kg/cm}^2\text{)}$	640 - 660	
	, , , , , , , , , , , , , , , , , , , ,	1	
1000	49.4 - 50.4 (cc/1000 strokes)	640 - 660	4, 0
			1
1000	44,3 - 45,3 (cc/1000 strokes)	290 - 310	3,5
360			2,0
100			
1		640 - 660	
I	1T-0.2-0.6 (mm)	640 - 660	
.550	. 0,2 0,0 ()	040 000	
	Speed min-1 1500 1500 1000 360 100 2250	Speed min-1 Setting values 1500 T = 4, 4 - 4, 8 (mm) 1500 5, 2 - 5, 8 (kg/cm²) 1000 49, 4 - 50, 4 (cc/1000 strokes) 1000 44, 3 - 45, 3 (cc/1000 strokes) 360 8, 1 - 10, 1 (cc/1000 strokes) 100 over 55, 0 (cc/1000 strokes) 2250 33, 2 - 37, 2 (cc/1000 strokes)	Speed min-1 Setting values min-1 Charge - air pressure - bar (mmHg) 1500 T = 4, 4 - 4, 8 (mm) 640 - 660 1500 5, 2 - 5, 8 (kg/cm²) 640 - 660 1000 49, 4 - 50, 4 (cc/1000 strokes) 640 - 660 1000 44, 3 - 45, 3 (cc/1000 strokes) 290 - 310 360 8, 1 - 10, 1 (cc/1000 strokes) 0 100 over 55, 0 (cc/1000 strokes) 0 2250 33, 2 - 37, 2 (cc/1000 strokes) 640 - 660

Z. 185 L Values				
2-1 Timing device	N = min-1	1250	1500	2150
	mm	2,7 - 3,9	4,3 - 4,9	7,6 - 8,8
2-2 Feed numn	N - min 1	1250	1500	2150

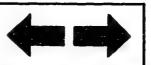
2-2 Feed pump	N = min-1	1250 1500 2150	
	kg/cm ²	4,5 - 5,1 5,2 - 5,8 6,8 - 7,4	
2-3 Overflow rate	N = min-1	1000	
	cc/10s	41,0 - 85,0	

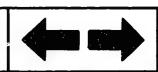
2-4	Del	ivery	rates		<u> </u>
Contr	01	lever	position	Speed	Deliver

2-4 Delivery rates		•		
Control lever position	Speed	Delivery rate	Charge-air pressure	Difference
	min-1	(cc/1000 strokes)		(cc)
End stop	1000	48, 9 - 50, 9	640 - 660	<u> </u>
	600	33, 9 - 38, 9	0	
	2150	39,7 - 44,7	640 - 660	
	2250	32,7 - 37,7	640 - 660	
	2550	8,0 - 15,0	640 - 660	
	2700	below 3,0	640 - 660	
	1000	43, 8 - 45, 8	290 - 310	
Shut-off	360	0	0	
Idle stop	450	below 3,0	0	
	360	7,6 - 10,6	0	
2-5	Cut-in	voltage max. 8 V		
Magnet		<u>1tage 12 - 14 V</u>		

3. Dime	ensions	
K KF MS LDA	3,2 - 3,4 5,7 - 5,9 1,6 - 1,8 3,9 - 4,1	am mm
α A	21, 0 - 29, 0 8, 8 - 14, 1	angle
β B	39,0 - 45,0 12,0 - 13,9	
Y C	-	angle mm

F1





• Note:

When checking the timing device travel and feed pump pressure, apply charge-air pressure of 640 - 660 mmHg to the charge-air pressure chamber.

SETTING LOAD-DEPENDENT START OF DELIVERY

1. To set

(1) Stop the control lever at the appropriate spot in accordance with the following conditions.

Charge-air pressure:

640 - 660

mmHg

Pump speed:

1500

/min

Injection quantity:

38, 2 + 0, 5

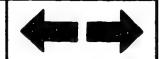
cm³/1000 strokes

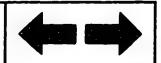
(2) When the control lever is in the position specified above (1), adjust the governor sleeve so that the timing device travel is as previously stipulated. (Page 1/4).

2. Checking load-dependent start of delivery

Stop the control lever at the appropriate spot in accordance with the following conditions, and check load-dependent start of delivery.

Position of control lever			Prescribed values		
Pump speed (1/min)	Injection quantity (cm ³ /1000 strokes)	Charge-air pressure (mmHg)	Timing device travel (mm)	Reduction of timing device travel (mm)	
1500	37, 2 - 39, 2	640 - 660	_	0,1 - 0,7	
1500	32, 2 - 34, 2	640 - 660	_	0,4 - 1,2	





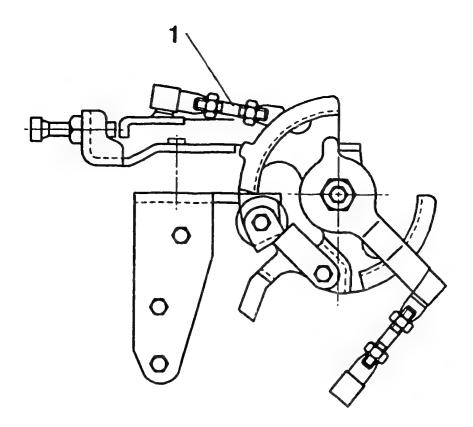


Fig. 30

104749-0344 3/4

SETTING SIDE CONNECTING LEVER

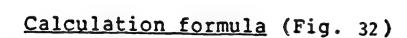
- 1. Clamp control lever in idle position.
- 2. Set rod (1) in such a way that the dimension for the pin equals

(between the side connecting lever and the angle bracket).

After this, tighten lock nut.



- 1. Setting the timing device stroke
 - (1) Calculate the timing device stroke (fig. 32) according to the ambient temperature during adjustment.
 - (2) Set stroke with the timing device stroke-adjustment screw (1), so that it agrees with the calculation (see below).
- 2. Setting W raised idling
 - (1) Adjust the adjustment screw (2) until there is a distance of 12.3 ± 0.5 mm between the control lever and the idle stop screw.
- 3. Setting the control lever angle
 - (1) Calculate the control lever angle (2 dimension) as shown in fig. 32, according to the air temperature during adjustment.
 - (2) Adjust the control lever angle (2 dimension) with adjustment screw (3).



Timing device travel:

$$TA = -0.04 t + 2.4 (t \ge 0^{\circ}C)$$

Control lever angle:

$$\ell = -0.072 t + 3.6 (t \ge 0^{\circ}C)$$

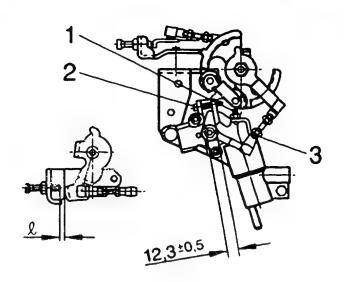
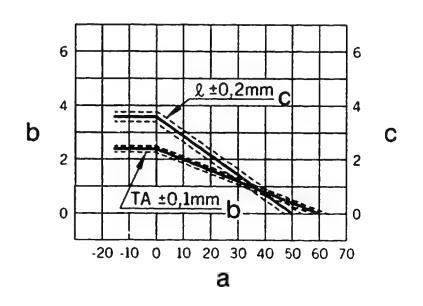


Fig. 31

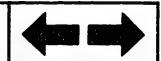
a = air temperature (°C)

b = timing device travel (TA) mm

c = gap dimension of control lever/idle-stop screw (1)







Test oil: ISO 4113 od SAE J967d

ZEXEL - Test values

Distributor pumps Engine: RFX

1/4 BOSCH no. 9 460 610 310 104749-0354 DKKC no. Date: 15.4.1988 MAZDA Company: RF72 13 800D No:

Injection pump no. 104649-0364

(NP-VE4/9F2150RNP557)

	Setting values	Speed min-1	Setting val		Charge - air pressure - bar (mmH	e line: 1 680 750 0° Difference
1-1	Timing device travel	1500	T = 4, 4 - 4, 8	(mm)	640 - 660	
	Feed pump pressure Full load delivery without charg	1500	5,2 - 5,8		640 - 660	
	air pressure Full load delivery with charge-a	1000	49, 4 - 50, 4	(cc/1000 strokes)	640 - 660	4, 0
	pressure	1000	44, 3 - 45, 3	(cc/1000 strokes)	290 - 310	3, 5
1-5	Low-idle speed regulation Start Maximum speed regulation	415 100 2250	over 55,0	<pre>(cc/1000 strokes) (cc/1000 strokes)</pre>	0 0	2,0
-7 -8	Load-dependent start of delivery		T-0,2 - 0,6	(cc/1000 strokes) (mm)	640 - 660 640 - 660	

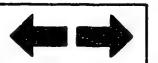
2-1 Timing device	N = min-1	1250 1500 2150	1
	mm mm	2,7 - 3,9 4,3 - 4,9 7,6 - 8,8	
2-2 Feed pump	N = min-1	1250 1500 2150	
	kg/cm ²	4,5 - 5,1 5,2 - 5,8 6,8 - 7,4	I
2-3 Overflow rate	N = min-1	1000	
	cc/10s	41,0 - 85,0	
2-4 Delivery rates			

		<u> </u>	35, U	
2-4 Delivery rates				
Control lever position	Speed		Charge-air pressure	Difference
	min-l	(cc/1000 strokes)	bar_(mmHq)	(cc)
End stop	1000	48, 9 - 50, 9	640 - 660	
	600	33, 9 - 38, 9	0	
	2150	39,7 - 44,7	640 - 660	
	2250	32,7 - 37,7	640 - 660	
	2550	8,0 - 15,0	640 - 660	
	2700	below 3,0	640 - 660	
	1000	43, 8 - 45, 8	290 - 310	
Shut-off	415	0	0	
Idle stop	500	below 3,0	0	
	415	10,6 - 13,6	0	
2-5	Cubic	1 0 1/	ļ	
		voltage max. 8 V		
Magnet	OV 1291	1tage 12 - 14 V		

3. Dim	ensions	
K KF MS LDA Angle	3,2 - 3,4 5,7 - 5,9 1,6 - 1,8 3,9 - 4,1	mm mm mm
α A	21,0 - 29,0 8,8 - 14,1	
β B	38,0 - 44,0 12,0 - 13,9	angle mm
Y	-	angle mm

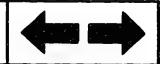
Test values

ZEXEL-Distributor pumps





Test values



• Note:

When checking the timing device travel and feed pump pressure, apply charge-air pressure of 640 - 660 mmHg to the charge-air pressure chamber.

• SETTING LOAD-DEPENDENT START OF DELIVERY

1. To set

(1) Stop the control lever at the appropriate spot in accordance with the following conditions.

Charge-air pressure:

640 - 660

mmHg

Pump speed:

1500

/min

Injection quantity:

38, 2 + 0, 5

cm³/1000 strokes

(2) When the control lever is in the position specified above (1), adjust the governor sleeve so that the timing device travel is as previously stipulated. (Page 1/4).

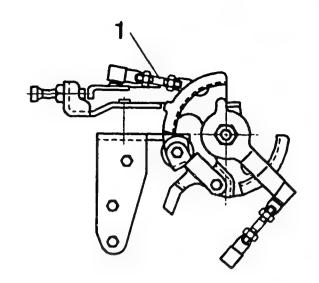
2. Checking load-dependent start of delivery

Stop the control lever at the appropriate spot in accordance with the following conditions, and check load-dependent start of delivery.

Position of control lever			Prescribed values		
Pump speed (1/min)	Injection quantity (cm ³ /1000 strokes)	Charge-air pressure (mmHg)	Timing device travel (mm)	Reduction of timing device travel (mm)	
1500	37,2 - 39,2	640 - 660	-	0,1 - 0,7	
1500	32,2 - 34,2	640 - 660	-	0,4-1,2	



- SETTING SIDE CONNECTING LEVER
 - 1. Clamp control lever in idle position.
 - 2. Set rod (1) in such a way that the dimension for the pin equals 5.8 0.2 mm (between the side connecting lever and the angle bracket). Then tighten lock nut.



SETTING POTENTIOMETER

Setting conditions				Prescribed value	
Control lever position	Pump speed (1/min)	Injection (cm ³ /1000 strokes)	qty.	Setting value for output voltage (V)	Remarks
Test					Setting point
Idle				1.6 ± 0.03	Setting point
Maximum speed				8.43 ± 0.7	Test point

(Input voltage 10V)

F13

Fig.	33
------	----



- 1. Setting the timing device stroke
 - (1) Calculate the timing device stroke (fig. 35) according to the ambient temperature during adjustment.
 - (2) Set stroke with the timing device stroke-adjustment screw (1), so that it agrees with the calculation (see below).
- 2. Setting W raised idling
 - (1) Adjust the adjustment screw (2) until there is a distance of 12.3 ± 0.5 mm between the control lever and the idle stop screw.
- 3. Setting the control lever angle
 - (1) Calculate the control lever angle (2 dimension) as shown in fig. 35, according to the air temperature during adjustment.
 - (2) Adjust the control lever angle (L dimension) with adjustment screw (3).

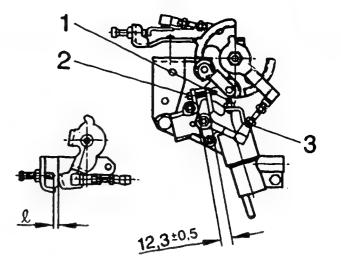


Fig. 34

a = air temperature (°C)

b = timing device travel (TA) mm

c = gap dimension of control lever/idle-stop screw (0)

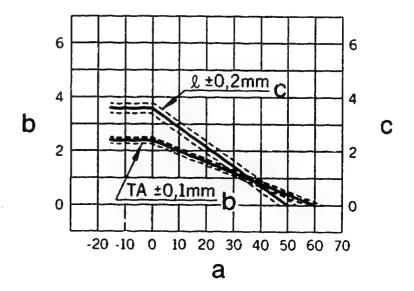
Calculation formula (Fig. 35)

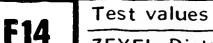
Timing device travel:

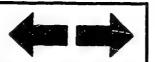
$$TA = -0.04 t + 1.6 (t \ge 0$$
°C)

Control lever angle:

$$\ell = -0.072 t + 3.6 (t \ge 0^{\circ}C)$$









Test oil: ISO 4113 od SAE J967d

ZEXEL - Test values

Distributor pumps

Engine: C223

BOSCH no. 9 460 610 274 DKKC no. 104749-1141 Date: 15.4.1988 ISUZU Company:

894241 6833

No:

Injection pump no. 104649-1151 (N

(NP-VE4/9F2175LNP72)

	roke setting: - mm	Test-nozzle	holder combination: 1 688 901	000 Test pressure	line: 1 680 750 017
1. 9	Setting values	Speed min-1	Setting values		Difference
1-2	Timing device travel Feed pump pressure Full load delivery without charge-	1500 1500	3,8 - 4,2 (mm) 5,2 - 5,6 (kg/cm ²		
	air pressure Full load delivery with charge-air	1500	40,1 - 41,1 (cc/1000 strokes)		3, 0
1-5	pressure Low-idle speed regulation Start	350 100	(cc/1000 strokes) 5,5 - 9,5 (cc/1000 strokes) over 63,0 (cc/1000 strokes)		2,0
	Maximum speed regulation Load-dependent start of delivery	2175	10,4 - 16,4 (cc/1000 strokes)		

2-1 Timing device	N = min-1	1000	1500	2175	
	mm	1,4 - 2,6	3, 7 - 4, 3	6, 1 - 7, 0	
2-2 Feed pump	$N = \min_{k \neq l \leq m^2}$	1000 3,8 - 4,4	1500 5 2 - 5 6	2175	
2-3 Overflow rate	N = min-1	1000		0,0 7,2	
	cc/10s	52,0 - 95,0			
2-4 Delivery rates					

	cc/1(0s 52,0 - 95,0			
2-4 Delivery rates					
Control lever position	Speed min-1	Delivery rate (cc/1000 strokes)	Charge-air	pressure	Difference (cc)
End stop .	2550 2440 2175 1500 600	below 6,0 10,4 - 16,4 34,7 - 38,7 39,6 - 41,6 30,0 - 34,0			7.007
Shut-off	350	0			
Idle stop	350 450	5,5 - 9,5 below 3,0			
2-5 Magnet		voltage max. 8 V Stage 12 - 14 V			L

3. Dime	ensions	
K KF MS LDA Angle	3,2 - 3,4 5,7 - 5,9 1,7 - 1,9 -	mm mm mm
α	21,0 - 29,0	
_A	2,8 - 8,0	mm
β	36,5 - 46,5	angle
В	10,5 - 14,5	mm
Y		angle
C	_	mm

Test values

ZEXEL-Distributor pumps



F17

Test values



Test oil: ISO 4113 od SAE J967d

ZEXEL - Test values

Distributor pumps

Engine: LD28

1/4 BOSCH no. 9 460 610 292 DKKC no. 104769-2026 15.4.1988 Date: NISSAN Company: 16700 V5710 No:

Injection pump no. 104669-2026
Direction of rotation: roam and

(NP-VE6/9F2500RNP21)

Direction of rotation: rear end side clockwi			
Prestroke setting: - mm	Test-nozzl	<u>e holder combination: 1 688 901</u>	000 Test pressure line: 1 680 750 017
1. Setting values	Speed	Setting values	Charge - air Difference
	min-1		pressure - bar (mmHq) (cc)
1-1 Timing device travel	900	T = 2, 0 - 2, 6 (mm)	Jan Manual Col
1-2 Feed pump pressure	900	3,5 - 4,1 (kg/cm ²	, J
1-3 Full load delivery without charge-		(1.57 0	
air pressure	900	29,0 - 30,0 (cc/1000 strokes)	2,5
Full load delivery with charge-air		(certoo strokes)	2,3
pressure		(cc/1000 strokes)	;
1-4 Low-idle speed regulation	350	6, 3 - 9, 3 (cc/1000 strokes)	
1-5 Start	100	40,8 - 48,8 (cc/1000 strokes)	
1-6 Maximum speed regulation	2600	15,5 - 21,5 (cc/1000 strokes)	
1-7 Load-dependent start of delivery	900	T-0,2-0,8 (mm)	
1-8	300		
2 Toch 4 2 1 4 2 2	l	(0, 8 - 10, 0 cc/1000 strokes)	

2-1 Timing device	N = min-1 9	1200 2300
		- 2,7 3,5 - 4,7 8,1 - 9,0
2-2 Feed pump	1 '' - ''' '	1800 2500
	$\frac{\text{kg/cm}^2}{3,4}$	- 4, 2 5, 5 - 6, 3 7, 2 - 8, 0
2-3 Overflow rate		000
	cc/i0s 43,0	87,0
2-4 Delivery rates		

		<u> </u>	37. O		
2-4 Delivery rates					
Control lever position	Speed	Delivery rate	Charge-air	pressure	Difference
	min-1	(cc/1000 strokes) bar (mmHg)	p. 0000.0	(cc)
End stop	900	28, 5 - 30, 5			3007
	600	27,0 - 31,0			
	2300	28, 8 - 32, 8	1		
	2600	15,0 - 22,0			
	2800	below 5,0			
Shut-off	350	0			
Idle stop	350	5,8 - 9,8			2,0
	500	below 4,0			_,,
Part load	900	2,1 - 12,1			
2-5	Cut-in v	oltage max. 12 V			
Magnet	Test vol				

3. Dimensions					
K KF MS LDA	3,2 - 3,4 6,54 - 6,74 1,7 - 1,9	mm mm			
α Alighe (of control le 21,0 - 29,0				
_A	2,5 - 8,0	_mm _			
B B	39,0 - 49,0 11,0 - 16,0	angle mm			
Y C	10,5 - 11,5 6,7 - 7,3	angle mm			
	6,7-7,3	mm			

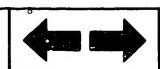
Test values

ZEXEL-Distributor pumps



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Test values

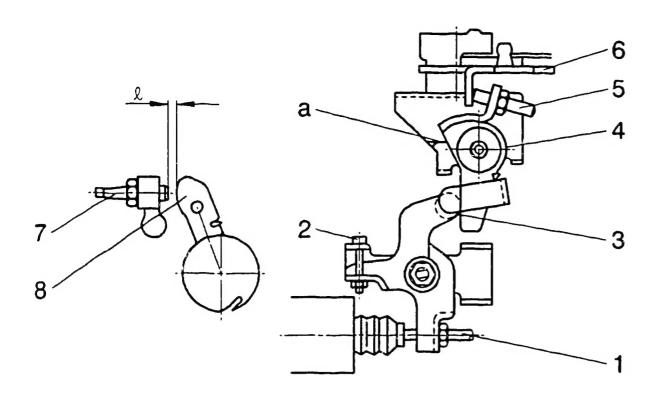


Setting the stop lever starting delivery

Set the above so that the starting injection delivery lies within the specified range (Page 1/4).

Tighten the adjustment screw for the starting delivery of the stop lever.

	Setting the	W-CSD	(KSB) test	point
	Water temp. °C	U/min	mm	Base
Timing	50		0	
device stroke	+0.5° 20 -		0.55 ± 0.2	Base
	-10		1.65	
	Water temp. °C	U/min	Degree	Base
F.I.C.D.	50		0	
lever angle	+0.5° 20 -		+ 0.5° 2-	Base
	-10		(6)	



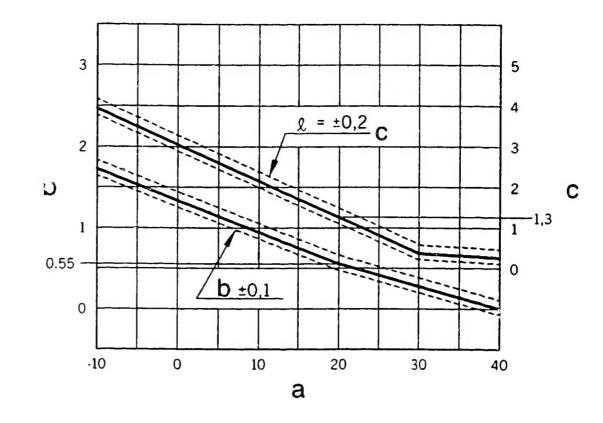


Fig. 36

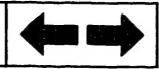
Fig. 37

- rig. 3
- a = Testing of standard line is not necessary

- Fig. 38 104769-2026 3/4
- a = temperature (°C)
- b = timing device travel (mm)
- c = measurement: 0 mm
 (tolerance between control
 lever and idle stop screw)

- SETTING THE W-CSD (KSB)
- 1. Setting the timing device travel (see fig. 38)

Set travel of timing device with the screw (1) in such a way that the timing device lift conforms to the values contained in the diagram (fig. 38).





2. Setting the intermediate lever position (see figs. 36 and 37)

Insert the thickness gauge $\ell=1.3\pm0.05$ mm between the idle adjustment screw (7) and the control lever (6). When the upper edge of the intermediate lever roller (4) is in the position where the upper edge of the angle (8) is located, temporarily tighten the screw (5) so that it touches the control lever (6). Then turn the screw clockwise a half or a full rotation. Turn back to its previous position, and then tighten. (During this process, the intermediate lever moves clockwise across the horizontal position by 1° to 3°)

3. Setting the W-CSD (KSB) lever (see figs. 36 and 37)

Insert the thickness gauge $\ell=\pm 0.05$ mm between the idle adjustment screw (7) and the control lever (6), as in the diagram (fig. 38), and tighten the screw (2) in the spot where the roller of the W-CSD lever (3) touches the intermediate lever (4). (During insertion, the temperature of the wax should remain below 30°C)

Note: When inserting the thickness gauge between levers (3) and (4), using the screw (2), leave a big enough gap so that no pressure is exerted on the lever.

Calculation formula (Fig. 37)

Timing device travel:

$$-10 \le t \le 20$$
 $TA = -0.0367 t + 1.284$
 $20 \le t \le 40$ $TA = -0.0275 t + 1.1$

Tolerance between control lever and idle stop screw:

$$-10 \le t \le 20$$
 $\ell = -0.0628 t + 2.1555$
 $20 \le t \le 30$ $\ell = -0.0507 t + 1.9142$
 $30 \le t \le 50$ $\ell = -0.0196 t + 0.9809$

